2/2 036 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125835

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MEASUREMENTS OF TRANSVERSAL RELAXATION TIMES IN THE 2 PULSE ELECTRON SPIN ECHO METHOD OF RADICALS TRAPPED IN ALPHA AND GAMMA IRRADIATED FORZEN SOLN. OF H SUB2 SO SUB4 AND IN MEOH YIELDS INFORMATION ON SPATIAL DISTRIBUTION OF TRAPPED RADICALS. THE RESULTS TESTIFY TO THE ESSENTIAL INFLUENCE OF THE LET OF RADIATION ON THE NATURE OF SPATIAL RADICAL DISTRIBUTION AND CAN BE EXPLAINED ON THE BASIS OF THE SPUR AND TRACK MODEL. AV. DISTANCES BETWEEN RADICALS IN TRACKS AND SPURS, AND THE NO. OF RADICALS IN SPURS WERE CALCD. FROM RELASATION DATA. FACILITY: INST. CHEM. KINET. COMBUST., NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ELECTRON,SPIN,ECHO STUDY OF THE SPATIAL DISTRIBUTION OF RADICALS DURING ALPHA AND GAMMA RADIOLYSIS OF METHANOL AND AN AQUEOUS SULFURIC

AUTHOR-(03)-RAITSIMRING, A.M., MORALEV, V.M., TSVETKOV, YU.D.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 180-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ELECTRON SPIN, RADIOLYSIS, METHANOL, SULFURIC ACID, POLONIUM, ALPHA PARTICLE, GAMMA RADIATION, FREE RADICAL, COBALT ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/0753 STEP NO--UR/0456/70/004/002/0180/0182

CIRC ACCESSION NO--AP0119660

UNCLASSIFIED

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AP0119660 PROCESSING DATE--23OCT7C

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PRIME210 PO ALPHA PARTICLE AND PRIME60 CO GAMMA RADIATION RADIOLYSIS WAS STUDIED OF THE GLASS LIKE 8M H SUB2 SO SUB4 SOLID AQ. SOLN. AND OF CRYST. MEOH AT 77DEGREESK. LOCAL RADICAL CONCNS. WERE DETD. BY USING THE 2,IMPULSE ELECTRON. SPIN,ECHO METHOD. THE SAME RADICALS OR ATOMS WERE FOUND IN BOTH THE ALPHA AND GAMMA IRRADIATED SYSTEMS, NAMELY CH SUB2 OH WITH MEOH AND H AS WELL AS SO SUB4 PRIME NEGATIVE WITH H SUB2 SO SUB4. THE RELAXATION RATE INCREASED LINEARLY WITH INCREASING MEAN RADICAL CONCN. IN THE GAMMA IRRADN., THE SLOPE OF THE STRAIGHT LINE INDICATING A REGULAR RADICAL DISTRIBUTION. NO CHANGE OF THE RELAXATION RATE AT VARYING MEAN RADICAL CONCN. WAS OBSD. IN THE ALPHA IRRADN. THIS WAS EXPLAINED BY ASSUMING THAT RADICALS ARE STABILIZED ALONG THE ALPHA,TRACK AND AUGMENTED LOCAL RADICAL CONCNS. ARE ATTAINED IN SOME REGIONS; NO SIGNIFICANT DIPOLE MAGNETIC INTERACTION BETWEEN RADICALS SITUATED IN SINGLE REGIONS IS EXPECTED TO OCCUR. THE RADII OF SUCH REGIONS, WHICH ARE PRESUMABLY CYLINDRICAL, ARE 130, 105, AND 55 A AND THE MEAN DISTANCES ARE 30, 35, AND 26 A WITH CH SUB2 OH, H, AND SO SUB4 PRIME NEGATIVE, RESP.

FACILITY: INST. KHIM. KINET. GORENIVA, NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2 052 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--FRICTION AND HEAT EXCHANGE BETWEEN ROTATING COAXIAL CYLINDERS AT TURBULENT FLOW CONDITIONS -U-
AUTHOR--RAITSIS, M.B.

COUNTRY OF INFO--USSR

SOURCE--LATV. PSR ZINAT. AKAD. VESTIS FIZ. TEHN. SER. (USSR), NO. 2, P. 63-72 (1970)
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--HEAT EXCHANGE, TURBULENT FLOW, REYNOLDS NUMBER, HYDRODYNAMICS, FRICTION COEFFICIENT, PRANDTL NUMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1418 STEP NO--UR/0371/70/000/002/0063/0072

CIRC ACCESSION NO--AP0138428
UNCLASSIFIED

2/2 052 UNCLASSIFIED

CIRC ACCESSION NO--AP0138428 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ANALYTIC EXPRESSIONS SUGGESTED BY DAISSLER FOR THE COEFFICIENT OF TURBULENT VISCOSITY ARE USED FOR CALCULATING THE DEPENDENCES OF THE FRICTION COEFFICIENT AND HEAT EXCHANGE ON REYNOLD'S NUMBER AT VARIOUS D-R PARAMETER VALUES AND ON PRANDTL'S NUMBER. ANALYTIC EXPRESSIONS ARE OBTAINED FOR CALCULATING THE VELOCITY AND TEMPERATURE PROFILES. A COMPARISON OF EXPERIMENTAL AND CALCULATED PROFILES CONFIRMS THAT THE SUGGESTIONS MADE ARE VALID FOR CALCULATING HEAT EXCHANGE CHARACTERISTICS IN HYDRODYNAMICS.

UNCLASSIFIED

1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DETERMINATION OF THE FOURIER SERIES COEFFICIENTS OF THE ELECTRON DENSITY FUNCTION OF PROTEIN CRYSTALS -U-

AUTHOR-(02)-RAIZ, V.SH., ANDREYEVA, N.S.

COUNTRY OF INFO--USSR

SOURCE--KRISTALLOGRAFIYA 1970, 15(2), 246-51

DATE PUBLISHED----------70

SUBJECT AREAS--PHYSICS, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FOURIER SERIES, ELECTORN DENSITY, PROTEIN, CRYSTAL, X RAY

CONTROL MARKING--NO RESTRICTIONS

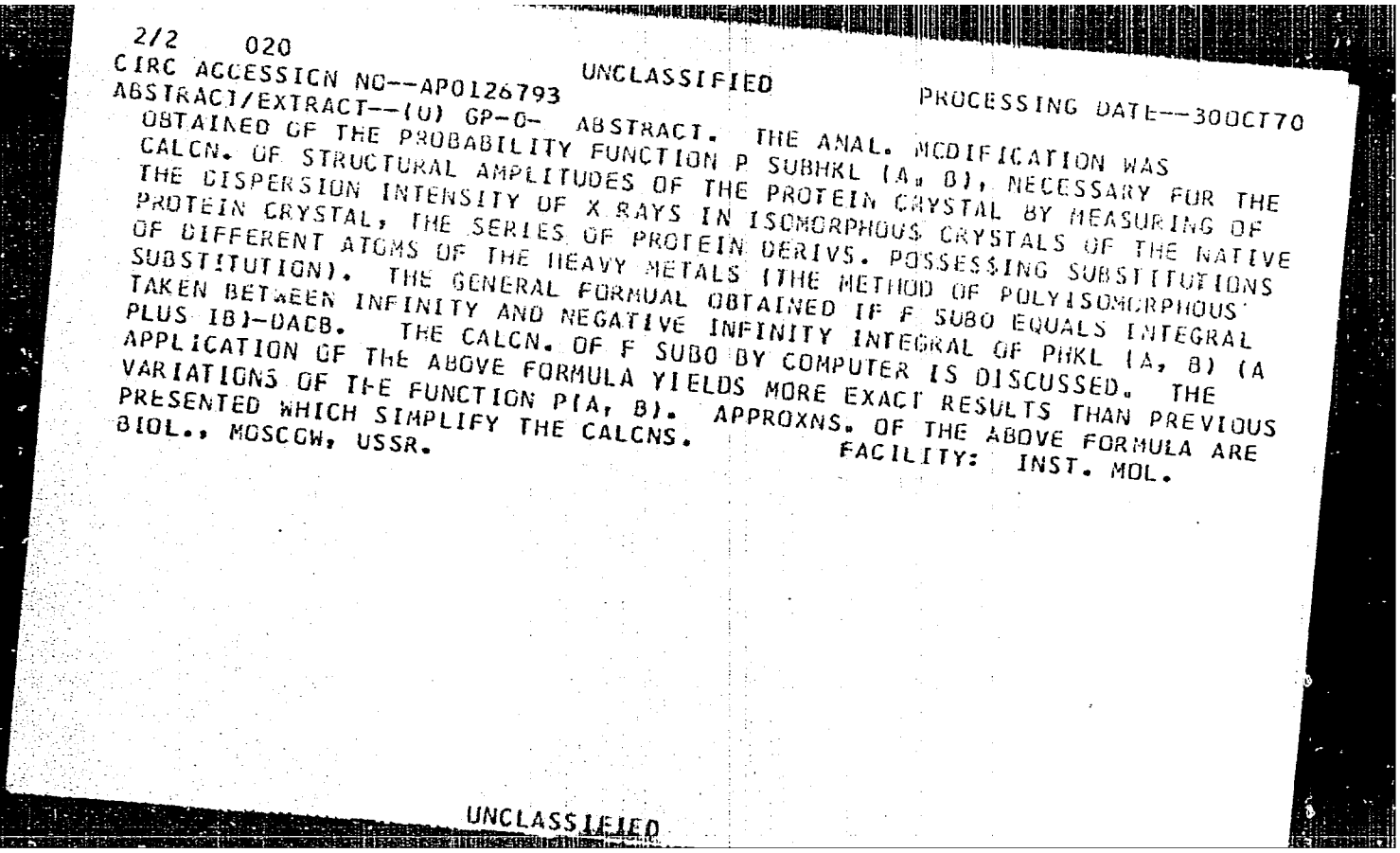
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1191

STEP NO--UR/0070/70/015/002/0246/0251

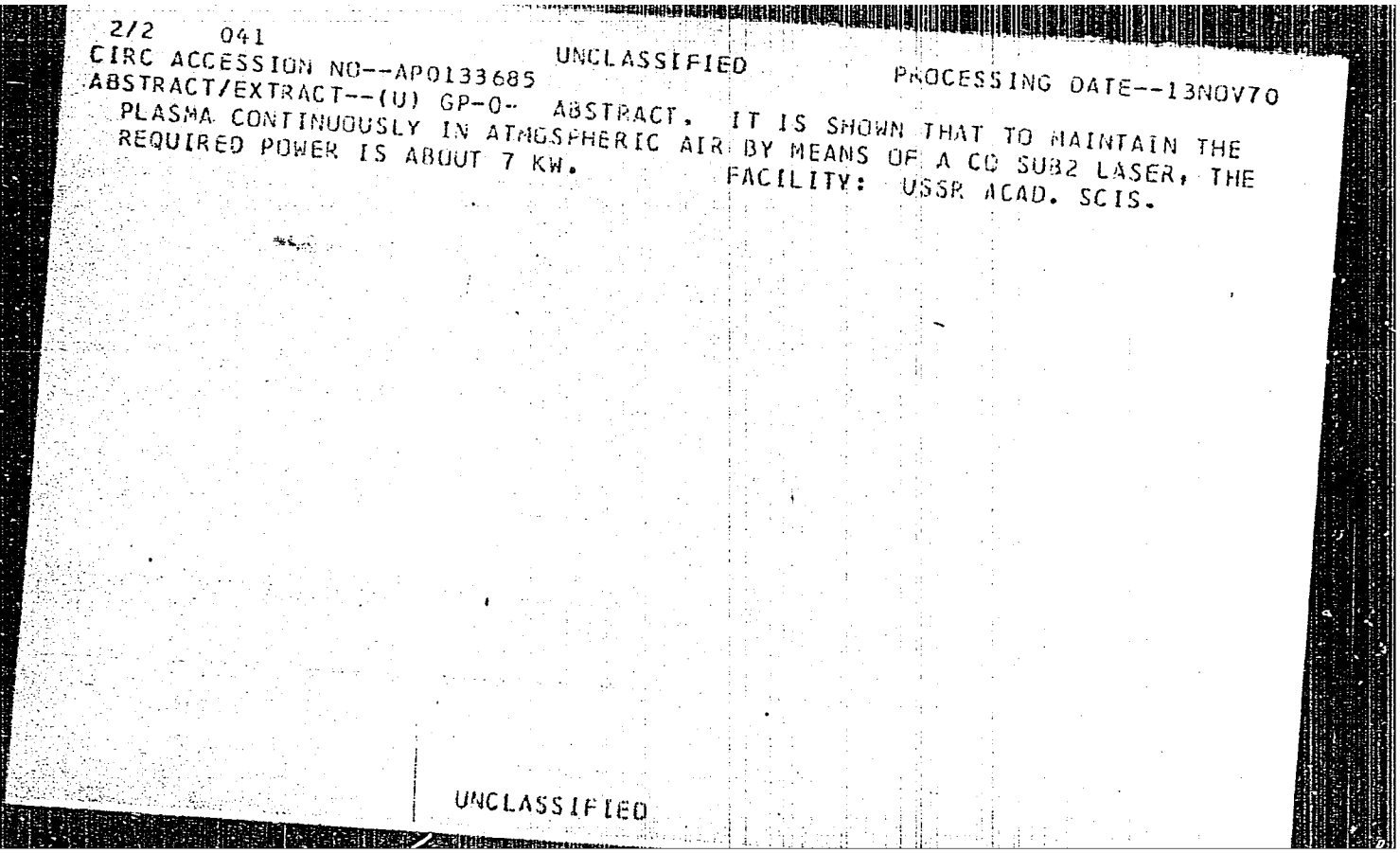
CIRC ACCESSION NO--AP0126793

UNCLASSIFIED



2/2 020 UNCLASSIFIED
CIRC ACCESSION NO--AP0126793 PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ANAL. MODIFICATION WAS OBTAINED OF THE PROBABILITY FUNCTION P SUBHKL (A, B), NECESSARY FOR THE CALCN. OF STRUCTURAL AMPLITUDES OF THE PROTEIN CRYSTAL BY MEASURING OF THE DISPERSION INTENSITY OF X RAYS IN ISOMORPHOUS CRYSTALS OF THE NATIVE PROTEIN CRYSTAL, THE SERIES OF PROTEIN DERIVS. POSSESSING SUBSTITUTIONS OF DIFFERENT ATOMS OF THE HEAVY METALS (THE METHOD OF POLYISOMORPHOUS SUBSTITUTION). THE GENERAL FORMUAL OBTAINED IF F SUBO EQUALS INTEGRAL TAKEN BETWEEN INFINITY AND NEGATIVE INFINITY INTEGRAL OF PHKL (A, B) (A PLUS IB)-DACB. THE CALCN. OF F SUBO BY COMPUTER IS DISCUSSED. THE APPLICATION OF THE ABOVE FORMULA YIELDS MORE EXACT RESULTS THAN PREVIOUS VARIATIONS OF THE FUNCTION P(A, B). APPROXNS. OF THE ABOVE FORMULA ARE PRESENTED WHICH SIMPLIFY THE CALCNS.
BIOL., MOSCOW, USSR.
FACILITY: INST. MOL.

UNCLASSIFIED



2/2 041 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133685

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IT IS SHOWN THAT TO MAINTAIN THE PLASMA CONTINUOUSLY IN ATMOSPHERIC AIR BY MEANS OF A CO SUB2 LASER, THE REQUIRED POWER IS ABOUT 7 KW.

FACILITY: USSR ACAD. SCIS.

UNCLASSIFIED

172 031 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--DELAYED RUPTURE OF TITANIUM ALLOYS DURING CYCLIC DEFORMATION -U-

AUTHOR-(02)-RAK, YU.I., BELOGLAZOV, S.M.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, VOL. 29, APR. 1970, P. 883-885

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TITANIUM ALLOY, BIBLIOGRAPHY, METAL STRESS, CYCLIC FATIGUE LIFE, METAL DEFORMATION, STRESS RELAXATION, METAL RELAXATION, ALLOY DESIGNATION, RESEARCH FACILITY/(U)UT31 TITANIUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0388 STEP NO--UR/0126/70/029/000/0883/0885

CIRC ACCESSION NO--AP0126143

UNCLASSIFIED

UNCLASSIFIED

2/2 031 PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0126143

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE OCCURRENCE OF DELAYED RUPTURE AND RELAXATION IN VTZ 1 TITANIUM ALLOY BY COMPARING THE RESULTS OF FATIGUE TESTS DURING CONTINUOUS AND DISCONTINUOUS CYCLIC LOADINGS. IT IS FOUND THAT CONTINUOUS CYCLIC LOADING SUBSTANTIALLY INCREASES THE FATIGUE LIFE IN COMPARISON WITH DISCONTINUOUS LOADINGS IN THE CASE OF LOADINS ABOVE THE FATIGUE LIMIT. WITH AN INCREASE IN THE EXTERNAL LOAD ON THE SPECIMENT THE DIFFERENCE BETWEEN CONTINUOUS AND DISCONTINUOUS LOADING INCREASES. AT STRESSES BELOW THE FATIGUE LIMIT THE PHENOMENON OF DELAYED RUPTURE AND RELAXATION IS NOT OBSERVED. ON THE BASIS OF THESE FINDINGS, A MECHANISM GOVERNING THE STRENGTH OF TITANIUM ALLOYS UNDER CONDITIONS OF CYCLIC LOADING IS SUGGESTED. FACILITY: PERMSKII POLITEKHNICHESKII INSTITUT, PERM, USSR. FACILITY: PERMSKII FARMATSEVTICHESKII INSTITUT, PERM, USSR.

UNCLASSIFIED

USSR

UDC 539.4.019.1:620.178.311.6

RAK, YU. I., and BELOGLAZOV, S. M., Perm Polytechnical Institute and Perm Pharmaceutical Institute

"Delayed Failure of Titanium Alloys under Cyclic Strain"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 883-885

Abstract: External loads, temperatures (causing internal friction), and time are all factors in the cyclic loading of metals which suggest the possibility of the development of delayed failure and relaxation via processes of the formation of vacancies and their interaction with dislocations.

A study of this question was done for the VT3-1 titanium alloy which, after mechanical working, was vacuum annealed at 700°C for two hours. The mechanical properties of the alloy after treatment were: elastic limit = 78 kG/mm^2, YS = 92 kG/mm^2, TS = 112 kG/mm^2, elongation = 11%, and reduction in area = 27%. It should be possible to observe the phenomenon of delayed failure and relaxation by means of comparing the results of fatigue tests from continuous and interrupted cyclic stresses. If the conditions of conducting fatigue tests promotes the advent of delayed failure and relaxation, then for continuous cyclic stress the durability of the samples should be greater than for those subjected to interrupted cyclic loading. Results of the fatigue tests proved the above statement inasmuch as the

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RAK, YU. I., and BELOGLAZOV, S. M., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 883-885

durability of samples undergoing continuous cyclic stressing was much greater than the opposite case.

From the experimental data the authors conclude that two processes are involved in the delayed failure of the VT3-1 titanium alloy. The first process takes place during heating up of the metal to a point which is the temperature of atomic activation and vacancy formation which leads to a weakening of the metal. The second process (resulting from the action of the same thermal source) is the ordering of the atomic structure and annihilation of vacancies which strengthen the metal. In addition, evidently, a specific critical stress value exists below which the formation of microbands, as a result of the formation and coalescence of vacancies, is highly improbable.

The phenomenon of delayed failure during cyclic loading can be explained by the "closing up" of micropores which were created by vacancies as a result of advancing dislocated atoms owing to increased thermal activity of the metal atoms. The phenomenon of relaxation can probably be explained by the fact that in the test period the formation and joining of vacancies into colonies with the formation of microbands is not completed. Since the action of the thermal source is sharply diminished upon completion of the tests, conditions are created for the formation

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RAK, YU. I., and BELOGLAZOV, S. M., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 883-885

of micropores of critical dimensions which notably reduce the fatigue strength of the sample upon subsequent loading.

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USSR

UDC 549.212

KOTOSONOV, A. S., DEMIN, A. V., POLOZHIKHIN, A. I., NIKOL'SKIY, I. F., and RAKCHEYEVA, V. I.

"Effect of Boron on Some Physical Characteristics of Artificial Graphites"

Moscow, Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 115-120

Abstract: The authors studied the effect of boron, introduced into the initial raw material (0.01-5.0 wt. percent), on some physical characteristics of graphite materials based on calcined petroleum coke, prepared by the thermomechanical treatment method. The attempt was also made to estimate the amount of boron dissolved in the graphite lattice and to establish the interrelationship between the amount of dissolved boron and the total content thereof, on the one hand, and certain physical properties of graphite, on the other. Specific electrical resistivity, magnetic resistance, Hall constant, X-ray diffraction parameters, compression strength and residual boron content were

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KOTOSONOV, A. S., et al., Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 115-120

measured on specimens, as well as relative deformation during thermomechanical treatment.

There was found to be an increase in the deformation of specimens during thermomechanical treatment and the density and mechanical strength of the material with an increase in the boron content. The structure of boronized graphite is characterized by increasad crystallite size and reduced interlayer distance. The electron properties of the graphite depend mainly on the amount of boron dissolved in the lattice and replacing some of the carbon atoms.

It is shown on the basis of an analysis of the Hall constant that the limiting solubility of boron is limited to 1 percent with re-

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KOTOSONOV, A. S., et al., Khimiya Tverdogo Topliva, No 3, May-Jun 70, pp 115-120

spect to the ordered part of carbon. The rest of the boron is localized between the graphite crystallites in the form of carbide compounds. It is assumed that the increased strength of the graphite is due to the carbide phase of boron.

Graphite

UDC 621.3.035.2

USSR

GOLOVINA, YE. S., SHIPKOV, N. M., KOTOVA, L. I., PERKOVA, G. A., DEMIN, A. V., and RAKCHEYEVA, V. I.

"Reactivity of Graphite With Titanium and Silicon Additives"

Tsvetnyye Metally, No 3, Mar 71, pp 59-62

Abstract: The reactivity of graphite with added titanium (0-10%) and silicon (3 wt %) was studied in an active gas medium at high temperatures (2500 and 3000°K). It was established that the introduction of silicon alone, facilitating the technological process, only slightly increases the resistance of graphite in the active medium. The combined introduction of titanium and silicon significantly reduced the reactivity of the graphite.

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Graphite

USSR

UDC: 621.3.035.2

LUTKOV, A. I., VOLGA, V. I., DYMOV, B. K., DEMIN, A. V., RAKCHEYEVA, V. I., and PERKOVA, G. A.

"Investigating the Effect of Refractory Elements on the Thermal and Electrical Conductivity of Graphite"

Moscow, Tsvetnyye Metally, No 8, Aug 70, pp 48-51

Abstract: The recent development of a method for graphite production involving thermomechanical processing under pressure has led to the diffusion of contaminants in the graphite. These contaminants react with the carbon to produce materials whose thermal and electrical conductivity characteristics are very sensitive to crystal structural defects caused by the contaminants. The purpose of this article was to investigate graphite obtained by this thermomechanical processing of coke into which refractory elements such as Ti, Si, Zr, and B, were introduced. The procedure for measuring the thermal and electrical conductivity in the temperature interval of 80-2500° K is the same as that used in an earlier paper written by the first-named of the authors above, in collaboration with others (Collection "Konstruktsionnyye materialy

USSR

LUTKOV, A. I., et al., Tsvetnyye Metally, No 8, Aug 70, pp 48-51

na osnove grafita" -- Structural Materials Based on Graphite -- 4th edition, published by "Metallurgiya," 1965, p 59). A brief description of the thermomechanical procedure is given. The authors found that the heightening of the material's plasticity, the result of the interaction between the carbon and these refractory elements, affects the properties of the product. They found also that boron, which is a close neighbor of carbon in the periodic table and has a practically equal atomic radius, can replace the carbon in the graphite lattice. It was noted that the presence of boron promotes the graphitization process. Curves of the thermal and electrical conductivity of the graphite as functions of the temperature in the graphitization furnace, for various concentrations of the refractory elements, are given.

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USSR

UDC 621.3.035.2

DEMIN, A. V., RAKCHEYEVA, V. I., PERKOVA, G. A., and SHIPKOV, N. N.

"New Class of Synthetic Graphites"

Moscow, Tsvetnyye Metally, No 4, Apr 70, pp 61-62

Abstract: The physical-mechanical properties of a new class of artificial graphites, including C-Zr-Si, C-Ti-Si, C-Ti-B, and C-B, are presented and discussed. Analysis of the data shows that the new class of graphites differs appreciably from the known graphites with respect to all physical characteristics. The strength of the new materials is 2-3 times higher, and the porosity is tens of times lower. One unique property of the new graphites is the possibility of varying the thermal conductivity within broad limits: from the thermal conductivity of ordinary graphite (35-40 kcal/m·hr·deg) to the thermal conductivity of copper (300 kcal/m·hr·deg). The distinguishing feature of the new class is anisotropy of their properties which varies from version to version, reaching a highest value of 2.5-3. The physical-mechanical characteristics of the synthetic graphites permit them to be used in semiconductor and high-temperature engineering, in melting and casting production, and in chemical machine-building.

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1/2 057 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--NEW CLASS OF SYNTHETIC GRAPHITES -U-

AUTHOR-(04)-DEMIN, A.V., RAKCHEYEVA, V.I., PERKOVA, G.A., SHIPKOV, N.N.

COUNTRY OF INFO--USSR

SOURCE--TSVET. METAL. 1970, 43(4), 61-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS, PHYSICS

TOPIC TAGS--CHEMICAL SYNTHESIS, GRAPHITE, SEMICONDUCTOR MATERIAL, ANISOTROPY, CHEMICAL COMPOSITION, TITANIUM, SILICON, BORON, ZIRCONIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1251 STEP NO--UR/0136/70/043/004/0061/0062

CIRC ACCESSION NO--AP0134925

UNCLASSIFIED

2/2 057 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0134925

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW TYPE OF SYNTHETIC GRAPHITE WAS DEVELOPED. THE MATERIALS (GRAPHITE PLUS TI, ZR, SI, B, ETC., UP TO 10 WT. PERCENT) ARE PRESSURE TREATED ABOVE 20000DEGREES. IN ALL PHYS. CHARACTERISTICS THE NEW TYPE OF SYNTHETIC GRAPHITES DIFFERS FROM KNOWN GRAPHITE MATERIALS, E.G., THE STRENGTH OF THESE MATERIALS IS HIGHER BY A FACTOR OF 2-3. THE POSSIBILITY OF CHANGING THE THERMAL COND. IN THE WIDE RANGE (FROM 35-40 FOR USUAL GRAPHITES TO 300 KCAL PER M HR DEGREE FOR CU) IS A UNIQUE PROPERTY OF THESE MATERIALS. THE NEW GRAPHITES SHOW ANISOTROPY ALSO. THESE NEW GRAPHITES HAVE APPLICATIONS AS MATERIALS FOR SEMICONDUCTOR AND HIGH TEMP. TECHNIQUES.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620002-5"

USSR

UDC 669.18:621.746.58

MAGER, A. YE., RAKEVICH, S. Z., KRAMAROV, A. D., LARIONOV, V. I., SEMENOV, YU. N., and PROISKIKH, S. N., Cherepovets Metallurgical Plant, Northwestern Polytechnical Institute, and Central Scientific Research Institute of Ferrous Metallurgy

"Effect of Pouring Rate and Metal Composition on Steel Ingot Quality for Deep Drawing"

Moscow, Stal', No 10, Oct 73, pp 888-892

Abstract: Steels 08Fkp, 08Yu, and 08kp were smelted in 250-ton open-hearth furnaces and poured into molds through an 80-mm diameter opening to form 14-14.5-ton ingots. These ingots were compared with ingots made of steel 08kp(N) which had been poured into molds with a 30-mm-diameter opening. Ingots of steel 08kp(N), 08kp, and 08Fkp were covered after pouring to allow boiling periods of 15, 20 and 20 minutes respectively. By increasing the pouring rate with simultaneous use of an active boiling intensifier [not specified], a fovarable rimmed-steel ingot structure was produced. A content of 0.06% V in the steel make it possible to diminish development of segregation phenomena in rimmed steel which then makes it similar to semikilled steel. The vanadium

USSR

MAGER, A. YE., et al., Stal', No 10, Oct 73, pp 888-892

content in the crust zone and in a ladle sample of the rimmed steel was the same and exceeded the vanadium concentration in the internal areas of the ingot. Four figures, four bibliographic references.

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USSR

UDC 669.046.5

YAVOYSKIY, V. I., SVYAZHIN, A. G., GRIGOR'YEV, N. S., LUZGIN, V. P., KONOVALOV, I. M., TAT'YANSHCHIKOV, A. G., TSUBENTSKOV, K. M., [redacted] and NECHAYEV, E. A.

"Metal Acidity in Intense Oxygen Bath Blowing"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys). Izd-vo "Metallurgiya," No 61, 1970, pp 84-90

Translation of Abstract: Results are presented of an investigation on metal heterogeneity in intense blowing. Comparable data on the average metal acidity level in a two-bath furnace and in other steel-melting furnaces are given. The effect of various technological factors on metal acidity in the two-bath furnace is considered. 5 figures, 3 references.

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USSR

UDC 669.14.018.48.004.12:669.018.262

YAKUSHIN, V. I., CHIZHOVA, V. YA., RAKEVICH, S. Z., and PETROV, I. N.

"Quality of Non-Aging Type 08Yu Steel Produced in a Dual-Bath Steelmaking Furnace"

Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 74-77

Translation: The possibility is demonstrated of producing low-carbon non-aging type-08Yu steel in a dual-bath steelmaking furnace. The technology differs significantly from the ordinary open-hearth process.

It is characterized by high rates of oxidation during the finishing period, from 0.60 to 1.35%/hr (averaging about 1.00%/hr). Due to the rapid nature of the process, the period of pure bubbling is absent in the production of non-aging steel.

One distinguishing feature of melts in the dual-bath furnace is the increased degree of oxidation of the final slag.

The yield of rollable steel and the quality of end products are practically the same as for steel of the same type produced in open-hearth furnaces without blowing of oxygen through the bath.

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USSR

UDC 669.14.018.48.004.12:669.018.262

YAKUSHIN, V. I., CHIZHOVA, V. YA., RAKEVICH, S. Z., and PETROV, I. N.

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Proizvodstvo Chernykh Metallov [Production of Ferrous Metals--Collection of Works], No 75, Metallurgiya Press, 1970, pp 74-77

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The yield of rollable steel and the quality of end products are practically the same as for steel of the same type produced in open-hearth furnaces without blowing of oxygen through the bath.

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USSR UDC 620.193.5:546.623-31:546.45-31

BUDNIKOV, P. P., BELYAYEV, R. A., VOLODIN, P. L., RAKHALIN, N. A., FURAYEV, V. A., and TUMBAKOVA, M. I.

"The Corrosion of Aluminum and Beryllium Oxides in Gaseous Ammonia at 200-800°C"

Leningrad, Zhurnal Prikladnoy Khimii, Vol XLIV, No 1, Jan 71, pp 54-59

Abstract: Data on the corrosion resistance of fused samples of beryllium and aluminum oxides in gaseous ammonia are virtually absent in the literature.

This study deals with liquid synthetic ammonia, Grade 1, GOST 6221-52, 99.94% pure, and 99.5% pure beryllium oxide with a specific surface of 4.5 m^2/g. After processing, samples were placed in streams of ammonia gas at various temperatures and flow rates, for various periods (200-800°C; 7.5-12.8 m/sec; 3-10 hr). After each test the ammonia gas was checked for decomposition, which might occur at high temperatures.

Gravimetric, metallographic and electron-microscope studies of the surface, revealed no corrosion of either oxide in the 200-800°C range. An ammonia

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USSR

BUDNIKOV, P. P., et al., Zhurnal Prikladnoy Khimii, Vol XLIV, No 1, Jan 71, PP 54-59

gas flow of 10 m/sec had neither a corrosive nor an erosive effect in the 250-350°C range.

USSR

UDC: 532.529

RAKHMATULIN, Kh. A., MEVLYUDOV, S. I.

"Supersonic Flow of a Two-Phase Mixture Around a Body"

V sb. Vopr. vychisl. i prikl. mat. Vyp. 9 (Problems of Computational and Applied Mathematics--collection of works. No 9), Tashkent, 1971, pp 166-175 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B1204)

Translation: The problem of flow of a two-phase mixture around a thin foil or body of revolution at supersonic velocity is considered in the linear theory approximation. A model of interpenetrating motion of two (or three) interacting continuous media (components) is used. In this connection, in addition to the energy equation of the gas (or mixture), barotropy is assumed, i. e. it is assumed that the perturbation of pressure p is a known function of perturbation of the density of the two-component mixture $\rho=\sum_{n=1}^{N}\rho_n$, where ρ_n is the density of the corresponding component, and N is the number of components. In the solution, the entire region of the disturbed flow is broken down into two subregions (I) and (II). A two-velocity

USSR

RAKHMATULIN, Kh. A., MEVLYUDOV, S. I., Vopr. vychisl. i prikl. mat. Vyp. 9, Tashkent, 1971, pp 166-175

model (N = 2) is applied to subregion (I) bounded by the head wave (by the characteristic in the linear approximation) and by the surface of the body. For subregion (II), bounded by the separation line and the body surface, a three-velocity model (N = 3) is used, the third component being the particles reflected from the surface of the body in accordance with the law of mirror reflection. Formulas are presented which give a solution in these regions. A series expansion with respect to the coordinate y normal to the oncoming flow is used to find the solution in region (II). Bibliography of 5 titles. A. N. Krayko.

USSR

UDC: 532.529

RAKHMATULIN, Kh. A.

"Flow of a Multicomponent Multiple-Velocity Continuous Medium Around Solids"

Tr. II Resp. konf. po aerogidromekh., teplootmenu i massootmenu. Sekts. "Aerodinamika bol'sh. skorostey" (Works of the Second Republic Conference on Aerohydromechanics, Heat Exchange and Mass Exchange. "High-Velocity Aerodynamics" Section), Kiev, Kiev University, 1971, pp 21-28 (from RZh-Mekhanika, No 5, May 72, Abstract No 5B1202)

Translation: Various schemes are considered for washing of bodies by a multiphase (multiple-velocity) flow. The author proposes a solution for the linear problem of potential flow of a mixture of two compressible phases with common pressure around a foil. Since the densities of the phases differ, the light phase is completely detached from the heavy phase in the case of a common pressure field for rarefaction flow of the mixture over the surface of the foil, and a region entirely of the light phase appears close to the body, which is bounded by the surface of the body and by the boundary stream line of the heavy phase (separation line). An analytical solution is proposed for the inverse problem where the separation line is given and the

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USSR

RAKHMATULIN, Kh. A., Tr. II Resp. konf. po aerogidromekh., teploobmenu i massoobmenu. Sekts. "Aerodinamika bol'sh. skorostey", Kiev, Kiev University, 1971, pp 21-28

surface of the washed solid is defined. A formulation is given for the problem of motion of gas flow together with particles around a foil in the compression region where the particles impact against the foil and are reflected from it, while the gas flows around the foil. As a result, a region of three-velocity motion arises around the body, which is bounded by some line of separation from the region of two-velocity flow. The author considers passage of a multiphase medium through an oblique shock wave above a foil in the single-velocity approximation. Bibliography of 20 titles. R. I. Nigmatulin.

2/2

RAKHMATULIN, KH. A.

RAN/ /R-760/5-... Dec '72

34

Kryukova, S. G., and V. S. Nikolayev. Experimental investigation of optimally balanced profiles in viscous supersonic flow. IN: Uchenyye zapiski Tsentral'nogo aero-gidrodinamicheskogo instituta, v. 2, no. 5, 1971, 94-98. (RZhMekh, 5/72, no. 5B377)

The optimal shapes of three classes of profiles with a given location of the balancing center of pressure were investigated in viscous hypersonic flow stream (M_∞ = 5.2, R = 150). The upper boundary of the quality factor as a function of the location of the center of pressure is found for the profiles under consideration. The experimental results are compared with theoretical data calculated by one of the authors (Nikolayev, Uchenyye zapiski Tsentral'nogo aero-gidrodinamicheskogo instituta, v. 1, no. 6, 1970, 67-74, RZhMekh, 1971, no. 10B229).

Rakhmatulin, Kh. A., and S. I. Meviyudov. Supersonic flow around a slender body in a two-phase mixture. IN: Voprosy vychislitel'noy i prikladnoy matematiki, Tashkent, no. 9, 1971, 166-175. (RZhMekh, 5/72, no. 5B1204)

The problem of supersonic flow around a slender profile or body of revolution by a two-phase mixture is considered in an approximation of linear theory. A model of the interpenetrating motion of two or three interacting continuous media (components) is used. Instead of an equation of energy of the gas or mixture, an assumption of barotropicity is used; i.e., the pressure perturbation p is considered to be a known function

Acc. Nr: AP0038104

Ref. Code: UR 0326

PRIMARY SOURCE: Fiziologiya Rasteniy, 1970, Vol 17, Nr 1, pp 40-48

DIFFUSION RESISTANCE OF LEAVES IN CONNECTION WITH THEIR ANATOMY

Laysk, A.; Oya, V.; Rakhi, M.

Institute of Physics and Astronomy, Academy of Sciences, Est. SSR

The CO_2 and water diffusion resistances were measured in 13 species of plants. Stomatal parameters (stomata number, stomata slit and tube lengths) and the exposed internal surface of the leaves were measured for the same plants. It is assumed that the anatomically possible maximal slit width does not exceed 1/2 the slit length. The minimal stomatal resistances determined experimentally never dropped below the minimal values calculated theoretically (fig. 1). The mesophyll resistance for a given species was not constant. For each species the minimal values obtained correlated with those calculated on basis of leaf anatomy (fig. 2). It is concluded that leaf anatomy determines the maximal rate of net photosynthesis. Under natural conditions additional limiting factors will appear, such as respiration, closing of stomata and increase of mesophyll resistance. The latter may be of a diffusional or chemical nature.

REEL/FRAME 19731154

USSR

UDC: 539.3

RAKHIM, O. V.

"Calculation of Rigid Square Plates on a Compound Base (Elastic Half-Space Combined With a Winkler Base)"

V sb. Osnovaniya, fundamenty i podzemn. sooruzh. (Bases, Foundations and Underground Structures--collection of works), Moscow, 1970, pp 94-101 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V174)

Translation: The author considers loading in the center of a rigid square plate on an elastic base made up of an elastic half-space combined with a Winkler base. The plate is broken up by an orthogonal grid into squares in whose center the forces of reaction of the base support are concentrated. These forces are represented as the sum of reactions of the Winkler base and the elastic half-space, these reactions being taken as the unknowns in a system of canonical equations in the method of forces. In calculating the coefficients of this equation, the known influence function of the elastic half-space is used. A numerical example is considered in which the plate is broken up into 25 squares and symmetry of the solution is used. V. I. Shalashilin.

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USSR

UDC 547.972/73

RAKHIMKHANOV, Z. B., SADYKOV, A. S., ISMAILOV, A. I., and KARIMDZHANOV, A. K., Scientific Research Institute of Chemistry and Technology of Cotton Cellulose, Tashkent

"Anthocyans of Hibiscus Cannabinus"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 723-727

Abstract: A study was made of the anthocyans of Hibiscus cannabinus var. simplex (kenaf). Two anthocyan glycosides were isolated from the flowers of this plant. One of them was the new glycoside called cannabinin and the other, myrtilin, which was isolated from kenaf flowers for the first time. The ratio of cannabinin to myrtilin in the kenaf anthocyans was about 4:1. Experimental procedures, yields and some physical and chemical characteristics of the products are presented for isolation of the anthocyans, obtaining cannabinin, acid hydrolysis of cannabinin, fermentative hydrolysis of cannabinin, oxidation of cannabinin with hydrogen peroxide, acid hydrolysis of bioside, isolation of myrtilin, acid hydrolysis of myrtilin, fermentative hydrolysis of myrtilin, oxidation of myrtilin with hydrogen peroxide and basic splitting of delphinidin. The new substance has λ_{max} = 531 nm. It is characterized as delphinidin-3-β-D-glucoside-β-D-xyloside (cannabinin):

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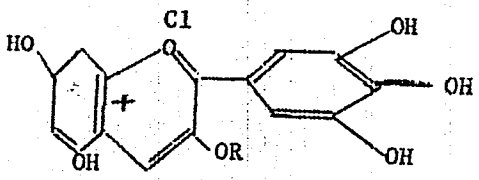
RAKHIMKHANOV, Z. B., et al., Khimiya Prirodnykh Soyedineniy, No 6, 1971, pp 723-727



R = glucosyl-xyloside

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USSR

MAMEDOV, K., and RAKHIMKULOV, R. YU., Institute of Botany, Academy of Sciences Turkmen SSR

"Review of the Literature on the Effect of Ionizing Radiation and Chemical Mutagens on Plants III"

Ashkhabad, Izvestiya Akademii Nauk Turkmenskoy SSR, Ser. Biol. Nauk, No 2, 1971, pp 86-92

Abstract: One- or two-line annotations are given for 66 articles dissertations, and books in Russian (or translated into Russian) published between 1933 and 1967. The items are arranged in alphabetical order by author. Among the works listed are "Chemical Mutagens and Plant Ploidy" by R. N. Platonov and V. V. Sakharov, "Mechanism of Action of Supermutagens" by I. A. Rapoport, "Methods of Detecting Induced Somatic Mutations in the Potato" by Ye. A. Solomko, "Effect of Chemical Mutagens and Gamma Rays on Mutability of Pea Varieties" by K. K. Sidorova, "Use of Ionizing Radiation in Plant Breeding" by V. V. Khvostova and S. A. Valeva, "Mutagenic Effect of Ethyleneimine on Air-Dried Winter Wheat Seeds" by M. S. Eyges, and "Effect of Barley and Wheat Growing Conditions on Seed Resistance to Irradiation" by S. I. Yanushkevich.
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USSR

UDC 582.264:576.809.33

TUBAYEV, T. T., VASIGOV, T., RAKHIMOV, A., and YAKUBOV, Kh. F., Division of Microbiology, Academy of Sciences Uzbek SSR

"Mass Cultivation of Scenedesmus Under the Open Sky"

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, Vol 16, No 3, 1972, pp 43-44

Abstract: Experiments were conducted on the cultivation on a large scale under the open sky of the local mesothermal strain UA-2-6 of the alga Scenedesmus obliquus (Turp.) Kuetz., which had been isolated from the soil of irrigated fields in the vicinity of Tashkent. Cultivation was carried out on an experimental plot of the Institute of Botany, Academy of Sciences Uzbek SSR. The algae were grown on installations of a type developed at Leningrad State University. The layer thickness was 8-10 cm. The inorganic nutrient medium 04 (cf. Ye. I. Milogradova and A. M. Muzaferov, p 9, in the symposium O Proizvodstvennoy Kul'ture Odnokletochnykh Vodorosley - The Cultivation of Single-Cell Algae on a Production Scale -, Fan, Tashkent) was used. CO_2 was fed in by means of a centrifugal pump. The average daily yield of S. obliquus from May to Sep corresponded to 18.4 g dry matter per sq. m. vs. 17.2 g for Chlorella vulgaris Beyer 157. The biomass of S. obliquus contained 750.2 mg/kg

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TUBAYEV, T. T., et al, Uzbekskiy Biologicheskiy Zhurnal, Vol 16, No 3, 1972, pp 43-44

carotene and crude protein 55.9, crude fat 10.4, ash 10-17, monosaccharides 0.13, maltose 1.2, dextrins 1.9, starch 2.02, hemicellulose 0.49, and cellulose 0.54. As far as the yield and the chemical composition of the biomass are concerned, S. obliquus is not inferior to Chlorella. Furthermore, it surpasses Chlorella with respect to some useful properties. S. obliquus contains chondrillasterone (0.23% of dry matter), which can be used as a starting material for the synthesis of cortisone. On the basis of the results obtained, the cultivation of S. obliquus under the open sky looks very promising.

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USSR UDC 632.95

TULYAGANOV, S. R., ALIMOV, E., KHASANOV, S. A., KHIKMATOV, A., KAMILOVA, R. M., and RAKHIMOV, A. A., Institute of the Chemistry of Plant Materials, Academy of Sciences Uzbek SSR; and Institute of Experimental Biology of Plants, Academy of Sciences Uzbek SSR

"Herbicides"

USSR Author's Certificate kl. [expansion unknown] A 01 n 9/02, No 338, 207, Filed 14 Oct 70, Published 12 June 72 (from Referativnyy Zhurnal -- Khimiya, No 7, 1973, Abstract No 7N695 by T. A. Belyayeva)

Translation: To control weeds during the planting of cotton, it was suggested to use phenyl compounds such as $PhN(COMe)CH_2CH_2OC_6H_4Cl$-4 (I) which have the active groups β-acetoxyethylaceanilide and p-ClC_6H_4OH. Compound (I) is almost completely lethal to amaranth and purslane in doses of 10 Kg/Lectare but is not toxic to the cotton.

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USSR

UDC 632.95

KAMILOVA, R. M., KHIKMATOV, A., RAKHIMOV, A. A., MAKHSUMOV, A. G., SAFAYEV, A., MIRZABAYEV, E. A.

"Herbicide"

USSR Author's Certificate No 336006, filed 7 Oct 69, published 22 May 72 (from RZh-Khimiya, No 5 (II), 1973, Abstract No 5N653)

Translation: A compound 2,5-diphenylthiophene (I) is proposed to control weeds in planted fields. In a dosage of 2-3 kg/hectare, I exhibits a herbicidal activity with respect to Shiritsa, Japanese barnyard millet, datura and partulak without damaging cotton.

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USSR

RAKHIMDZHANOV, A. R., Professor, ASKAROV, Sh. A., and ZIKON, T. S., Department of Neuropathology, Tashkent Institute for the Advanced Training of Physicians

"Polyneuritis in Chlorophos Poisoning"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 5, 1971, pp 67-69

Abstract: Three cases of intoxication with chlorophos (dipterex-a cholinesterase inhibitor) are described. Two young girls drank it with suicidal intent and a 34-year-old male drank it unintentionally. All 3 developed the characteristic symptoms of acute poisoning with nausea, vomiting, and unconsciousness. Polyneuritis began to be manifested 6, 16, and 24 days after ingestion of the insecticide. Pain appeared in the gastrocnemius. Weakness developed in the lower legs and feet and, in one case, in the hands. The achilles tendon and patellar reflexes were absent. Two patients experienced hyperesthesia in the feet and lower legs. Treatment with vitamins, stimulants, physical methods, exercise, and massage resulted in improvement but not complete recovery. One case is described in some detail.

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Foundry

USSR UDC 669.71.046.44

RAKHIMOV, A. R., MUKHYMBEKOVA, M. K., ISAKOV, U. I., and PONOMAREV, V. D.

"Method of Processing Alumosilicate Slags Obtained During Reduction Smelting of Lisakovskiy Concentrates"

Sb. materialov Vses. seminara energetikov predriyatiy tsvetn. metallurgii po ekon. elektroenergii (All-Union Seminar of Electrical Engineers of the Enterprises of Non-ferrous Metallurgy on the Question of Economizing on Electrical Power -- collection of transactions), Moscow, 1970, pp 20-28 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11 G98)

Translation: Alumosilicate slags were smelted from fluxed pellets of magnesium lisakovskiy concentrate. Experiments of sintering the slags with soda were conducted and the optimal conditions of sintering were established. The conditions of decompsoition of cakes and the effect of different factors were studied. Experiments were conducted involving combined processing of alumosilicate slags with red slime using the autoclave method, and the feasibility of such a combination was shown.

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USSR

GROSHEV, L. V., GOVOR, L. I., DEMIDOV, A. M., and RAKHIMOV, A. S., Institute of Atomic Energy imeni I. V. Kurchatov

"Spectra of Gamma-Rays and Schematics of Xe^{130} and Xe^{132} Levels from the Reaction (n, γ)"

Moscow, Yadernaya Fizika, Vol 13, No 6, Jun 71, pp 1129-1134

Abstract: Using a spectrometer with a Ge(Li)-detector, the authors measure gamma rays arising during the capture of heated neutrons in a natural mixture of xenon isotopes and a sample enriched with Xe^{129}. They determine the energies and intensities of the gamma lines extracted from the spectra. On the basis of the data obtained they compile schematics of the gamma transitions of even-even Xe^{130} and Xe^{132} nuclei to levels lying below approximately 4.5 MeV. Unlike previous spectrometers, the one described in this article permits detecting a greater number of intense gamma rays. Solid XeF_2 and $Xe^{129}F_2$ were used as the target. A table is given showing the isotopic composition of an Xe^{129} sample. Two schematics are included showing the gamma transitions of the Xe^{130} and Xe^{132} nuclei. In separate sections the authors describe these schematics in detail and discuss previous research in the same field. The article contains one table, two figures, and a bibliography of 12 titles.

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1/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--LEVEL SCHEMES FOR BARIUM 136 AND BARIUM 138 FROM N, GAMMA REACTIONS -U-

AUTHOR-(04)-GROSHEV, L.V., DVORETSKIY, V.N., DEMIDOV, A.M., RAKHIMOV, A.S.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(4), 768-76

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--GAMMA SPECTRUM, BARIUM ISOTOPE, THERMAL NEUTRON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/2029 STEP NO--UR/0048/70/034/004/0768/0776

CIRC ACCESSION NO--AP0138883

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0138883

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A BA TARGET ENRICHED IN PRIME135 BA AND PRIME137 BA, WAS IRRADIATED WITH THERMAL N, AND GAMMA SPECTRA WERE MEASURED WITH GE(LI) DETECTORS. THE ENERGY AND RELATIVE INTENSITY OF 74 GAMMA LINES FROM THE NATURAL MIXT., PRIME136 BA, AND PRIME138 BA ARE TABULATED. SCHEMES OF ENERGY LEVELS AND TRANSITIONS FOR BOTH NUCLIDES ARE INTERPRETED AND SUMMARIZED IN DECAY SCHEMES.

FACILITY: INST. AT ENERG IM. KURCHATOVA, MOSCOW, USSR.

UNCLASSIFIED

RAKHIMOV, A. T.

JPRS 57880

2 January 1973

COMBINED GAS-LASER PUMPING

[Article by Corresponding Member of the AS USSR Ye. P. Velikhov, I. V. Novobrantsev, V. D. Pis'mennyy, A. T. Rakhimov, and A. N. [illegible], Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 6, 1972, pp 1328-1331]

The combined excitation of CO_2 lasers [1] (by an electric field and an ionization source)[2] has been not only an additional tool for study of the working mechanism of the laser [2] but also a promising method of exciting generation in large volumes of gas at a high pressure.

The use of powerful ionization sources (heavy-current accelerators and pulsed reactors [3,4]) permits creating the prerequisites for the flow of volume discharge. However, as will be shown below, such a discharge proves to be unstable. That instability has an overheating ionization character. It has been analyzed in [5] with respect to stationary diffusive discharges. In [3] an attempt was made to analyze such instability with respect to pulsed volume discharges. In that case the authors erroneously linearized the system of hydrodynamic equations under conditions where the time of development of the instability is less than the time of establishment of the stationary state, which is determined by the thermal conductivity of the gas. (Such an approach was justified in the case of stationary discharge [5]). We have analyzed the development of discharge under the effect of an external ionization source and an applied electric field when the heat-transfer time is much greater than the gas-heating time.

Let us examine filamentary fluctuation of the gas density parallel to an electric field which is assumed to be constant. Let the characteristic dimension of inhomogeneity satisfy the conditions

$$[illegible] \quad (1)$$

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002202620002-5"

USSR UDC 547.944/1

RAKHIMOV, D. A., SHARIPOV, M. R., ARIPOV, Kh. N., MALIKOV, V. M., SHAKIROV, T. T., and YUNUSOV, S. Yu., "Order of the Red Banner of Labor" Institute of the Chemistry of Plant Materials, Academy of Sciences, Uzbek SSR

"Polybuffer Separation of Vinca Erecta Alkaloids"

Tashkent, Khimiya Prirodnykh Soyedineniy, No 6, 1970, pp 713-717

Abstract: The complex alkaloid mixture from vinca erecta was separated by alkalinity on a special polybuffer separating unit. The mixture of alkaloids in an organic solvent was passed in sequence through a number of phosphate buffer solutions with different pH values arranged in order of increasing pH. The use of this method results in distribution of the alkaloids into fractions containing 3-6 bases apiece. The following bases were isolated in addition to previously identified alkaloids: ervincidine, apovincamine, (+)-quebrachamine, dl-eburnamine, (-)-1,2-dehydroaspidospermidine and copsanone. This is the first time that these bases have been derived from this plant. Ten or twelve other unidentified alkaloids were also detected by thin-layer chromatography. The region of passage of some alkaloids into the buffer solutions is established.

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1/2 020 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--STRUCTURE OF ERVINCEINE, ERVAMYCINE, AND ERVINCINE -U-

AUTHOR-(04)-RAKHIMOV, D.A., MALIKOV, V.M., YAGUDAYEV, M.R., YUNUSOV, S.YU.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PRIR. SOEDIN. 1970, 6(2), 226-31

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PROCESSED PLANT PRODUCT, IR SPECTRUM, MASS SPECTRUM, NUCLEAR MAGNETIC RESONANCE, MOLECULAR STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0466 STEP NO--UR/0393/70/006/002/0226/0231

CIRC ACCESSION NO--AP0132681

UNCLASSIFIED

2/2 020 UNCLASSIFIED

CIRC ACCESSION NO--AP0132681 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM VINCA ERECTA, (MINUS) EBURNAMONINE AND 3 NEW ALKALOIDS ERVINCEINE (I), ERVAMYCINE (II), AND ERVINCININE (III) WERE ISOLATED AND STRUCTURES ASSIGNED ON THE BASIS OF CHEM. TRANSFORMATION AND UV, IR, NMR, AND MASS SPECTRA. II WAS HYDROGENATED TO I. FACILITY: INST. KHIM. RAST. VESHCHESTV, TASHKENT, USSR.

UNCLASSIFIED

USSR

RAKHIMOV, B. E.

UDC 621.372.061

"Effect of Noise on the Operation of a Automatic Phase Frequency Control System with a Rectangular Characteristic of the Phase Detector"

Uch. zap. Gorkovsk. un-t (Scientific Notes of Gorkiy University), 1970, vyp. 105, pp 33-38 (from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9A51)

Translation: This study has been carried out for the case of a filterless automatic phase frequency control system beginning with the stochastic differential equation of the system considering the phase fluctuations of the signals as a result of the effect of the noise on the standard or tunable oscillators and the noise going with the standard signal through the amplitude limiter. It is demonstrated that the given automatic phase frequency control system has less residual detuning by comparison with the system having a phase detector with a sinusoidal characteristic with identical ratios of the synchronism band width to the low-frequency filter transmission coefficient. There are four illustrations and an eight-entry bibliography.

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USSR

UDC: 621.372.061

ISMAILOV, Z. I., RAKHIMOV, G. R.

"Third-Order Subharmonic Oscillations in a Circuit With an Active Nonlinear Element"

Kiev, Izvestiya VUZov, Radicelektronika, Vol 15, No 1, Jan 72, pp 93-98

Abstract: The paper is an analytical approach to the question of exciting and sustaining subharmonic waveforms of third order in an electric circuit with a tunnel diode in cases of parallel and series connection of the load impedance. An examination of the frequency characteristic shows it to be generally asymmetric relative to the average frequency. Three figures, bibliography of two titles.

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USSR

UDC 621.316.721

RAKHIMOV, G.R., KARIMBERDYYEV, T.

"Electromagnetic Current Regulator"

Dokl. AN UzSSR (Proceedings of the Academy of Sciences, Uzbek SSR), 1970, No 6, pp 18-20 (from RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B564)

Translation: The circuit is considered of an a-c regulator in which the load is connected between the midpoint of the secondary winding of a transformer and the midpoint of two series-connected linear inductances, one of which is directly connected with one end of the secondary winding of the transformer, and the second is connected with the second end of the secondary winding across a nonlinear ferromagnetic element, the nature of which is approximated by a binomial of the third power. The differential equations of the system are considered and the dependence of the current in the load on the input voltage is derived. It is shown that after determining the magnitude of the input voltage of the regulator, the load current practically does not depend on the input voltage. 2 ill. B.D.

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USSR

UDC 621.316.721

RAKHIMOV, G.R., KHASANOV, P.F., KARIMBERDYYEV, T.

"Some Variations Of The Balanced Circuits Of Nonautooscillating Current Regulators"

[Nauchn.tr.] Tashkent. politekhn. in-t ([Scientific Works] Tashkent Polytechnical Institute), 1970, No 65, pp 220-224 (From RZh--Elektronika i yeye primeneniye, No 12, December 1970, Abstract No 12B565)

Translation: The circuits are considered of nonautooscillating current regulators (NCR) which can be fulfilled with a power supply from a single-phase or 3-phase net. Both NCR types are fulfilled by a differential or bridge circuit. Instead of a power transformer, an autotransformer can be used in the NCR if galvanic decoupling of the supply circuit and load is not required. For all balanced NCR a saturation choke coil is required, the core of which the NCR has. For production of a regulated current, parallelism is required of the volt-ampere characteristics of all arms of the power transformer and achievement of a shift of the current axis of the volt-ampere characteristic. Balanced NCR operate with a wide range of variations of the voltage supply, and load. The dependence of the stabilization factor of balanced NCR on a change of frequency of the power supply is insignificant. 5 ill. 2 ref. V.Sh.

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1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INFLUENCE OF NITROGEN NUTRITION CONDITIONS ON HILL REACTION ACTIVITY -U-

AUTHOR--RAKHIMOV, G.T.

COUNTRY OF INFO--USSR

SOURCE--UZB. BIOL. ZH. 1970, 14(1), 18-19

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PLANT GROWTH, NITROGEN, NUTRITION, CHLOROPHYLL, CHLOROPLAST, PHOTOSYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0447 STEP NO--UR/9079/70/014/001/0018/0019

CIRC ACCESSION NO--AP0137538

UNCLASSIFIED

2/2 010 UNCLASSIFIED

CIRC ACCESSION NO--AP0137538 PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SUGAR BEET PLANTS WERE GROWN IN POTS IN GRAVEL CULTURE, WITH ADDN. OF THE MODIFIED KNOPP'S MIXT, SOLN. AT THE APPEARANCE OF N DEFICIENCY, SUCH AS RETARDING OF PLANT GROWTH, AND CHLOROSIS OF LOWER AND MIDDLE LEAVES, THE MIDDLE LEAVES WERE TAKEN FOR ANAL. THE DEGREE OF N DEFICIENCY WAS CHARACTERIZED AFTER THE DETN. OF N CONTENT BY THE KJELDAHL METHOD, AND AFTER MEASUREMENTS OF PHOTOSYNTHESIS IN THE N STREAM. ISOLATION OF CHLOROPLASTS, AND DETN. OF THE HILL'S REACTION ACTIVITY WERE DONE AFTER THE J. H. HILLER METHOD (1960). THE RESULTS OF ANAL. REVEALED THAT THE LEAVES AT THE SUPPLY OF N OF 4PERCENT OF NORMAL REQUIREMENT, CONTAINED 43-79PERCENT N, HAD PHOTOSYNTHESIS INTENSITY 21-35PERCENT, AND CHLOROPHYLL CONTENT 39-53PERCENT OF THE CONTROL PLANTS. THE N DEFICIENCY ALSO CONSIDERABLY NEG. EFFECTED THE HILL'S REACTION ACTIVITY BY DECREASING ITS INTENSITY TO 0-30PERCENT FROM THE NORMAL ACTIVITY. THE CHLOROPLASTS OF THE N DEFICIENT PLANTS REDUCED 0-4 GAMMA PIGMENTS-L GAMMA CHLOROPHYLL IN 2 MIN, WHILE CHLOROPLASTS OF THE CONTROL PLANTS, 10-13 GAMMA. IT INDICATED THAT THE N DEFICIENCY CASED A DELAY OF WATER PHOTOLYSIS, AND INHIBITED PHOTOSYNTHESIS, AND DISTURBED THE CHLOROPLAST STRUCTURE.

FACILITY: INST. BOT., TASHKENT, USSR.

UNCLASSIFIED

USSR UDC 591.1:591.54

YUNUSOV, A. Yu. (deceased), RAKHIMOV, K., and SAFAROVA, S., Division of Physiology, Academy of Sciences Uzbek SSR

"The Enzyme Activity of the Contents of the Rat Intestine During Repeated Exposure of the Animals to High Temperatures and Solar Irradiation"

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, Vol 16, No 3, 1972, pp 39-40

Abstract: Rats were exposed daily for two hours during 30 days to high temperatures (35-40°) and intensive solar irradiation under the conditions prevalent in Jun-July in Tashkent. As shown by investigations of the contents of the small intestine, the amylolytic and lipolytic activities in the intestine decreased under the effect of exposure of the animals to heat and solar radiation. The amylase content in the intestine, after decreasing to 51.0 ± 6.2% of that for controls on the first day of the experiment, dropped to a minimum of 38.5 ± 4.2% on the 5th day and then gradually increased. It amounted to 48.8 ± 6.2, 59 ± 7.3, 84.6 ± 10.2, and 81.6 ± 10.0% on the 10th, 15th, 20th, and 30th day, respectively. The lipase content was 23.0 ± 1.6% of that for controls after a single exposure and then became 28.4 ± 2.4, 37.0 ± 4.3, 39.3 ± 5.6, 42.0 ± 6.4, and 41.9 ± 6.3% on the 5th, 10th, 15th, 20th, and 30th day, respectively. The increase in the secretion of digestive enzymes after an 1/2

USSR

YUNUSOV, A. Yu, et al., Uzbekskiy Biologicheskiy Zhurnal, Vol 16, No 3, 1972, pp 39-40

initial decrease indicated adaptation of the animals to the heat and irradiation. During the first 10 days of the experiment, the body temperature of the animals during exposure reached 41.5-42.0°. Profuse salivation and lack of motor coordination developed. During the period from the 10th to the 30 day, the body temperature did not rise above 39.5-40°, salivation was moderate, and motor coordination was not disturbed.

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USSR

UDC 523.51

VINOGRADOV, A. P., LAVRUKHINA, A. K., GANIYEV, A. G., SIL'VANOVICH, Yu. A., and RAKHIMOV, Kh. R., Institute of Geochemistry imeni V. I. Vernadskiy, Academy of Sciences USSR, Moscow, and Institute of Nuclear Physics, Academy of Sciences Uzbek SSR, Tashkent

"Distribution of Platinoids and Gold Between Various Phases of Meteorite Matter. I."

Moscow, Geokhimiya, No 12, Dec 72, pp 1461-1469

Abstract: The regularities of the distribution of platinoids and Au between the phases of Fe-poor chondrites of the L-group of various petrological types were studied. In the analysis of samples, neutron activation followed by the radiochemical separation of the platinoids and Au, which were identified from the gamma-emission of the radioisotopes, was applied. There was a gradual increase in the content of platinoids and Au in the Fe-Ni phase in the sequence L3 < L4 < L5 < L6. The content of Pd in the Fe-Ni phase decreased with an increasing absolute content of this element in chondrites; this relationship was not observed for the other elements. The content of platinoids and Au in the FeS of chondrites was higher as compared with that in the troilite of iron meteorites. The content of Pd, Os, Ir, Pt, and Au

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VINOGRADOV, A. P., et al., Geokhimiya, No 12, Dec 72, pp 1461-1469

in the silicate phase of chondrites decreased in the sequence indicated. One may assume that the recrystallization of chondrites in the protoplanetary nebula resulted in a substantial redistribution of platinoids and Au between the phases of chondrites of the L-group; an enrichment in these metals of the Fe-Ni phase took place that was accompanied by a reduction of their content in the sulfide and silicate phases.

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1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CHROMATOGRAPHIC ISOLATION AND SEPARATION OF MIXTURES OF ALKALINE EARTH ELEMENTS FROM NATURAL MINERALS -U-

AUTHOR-(03)-ARSLANOVA, S.S., RAKHIMOV, KH.R., SENYAVIN, M.M.

COUNTRY OF INFO--USSR

SOURCE--UZB. KHIM. ZH. 1970, 14 (2), 12-14

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, CHEMISTRY

TOPIC TAGS--ION EXCHANGE RESIN, CHEMICAL SEPARATION, CALCIUM, STRONTIUM, MAGNESIUM/(U)KUZ ION EXCHANGE RESIN, (U)AV17 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0356 STEP NO--UR/0291/70/014/002/0012/0014

CIRC ACCESSION NO--AP0137460

UNCLASSIFIED

2/2 013 UNCLASSIFIED

CIRC ACCESSION NO--AP0137460 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DOLOMITE (0.1 G) WAS CALCINED AT 1000-200DEGREES, FUSED WITH NA SUB2 CO SUB3, DISSOLVED IN H SUB2 O, AND FILTERED. THE FILTRATE WAS TREATED WITH NH SUB3 AND FILTERED. THE ACIDIFIED FILTRATE WAS PASSED THROUGH AV-17 ION EXCHANGER (A STRONG BASIC POLYSTYRENE TYPE) IN OH PRIME NEGATIVE FORM. CELESTINE (0.1 G) WAS FUSED AT 6-700DEGREES WITH NA SUB2 CO SUB3, H SUB2 C SUB2 O SUB4, AND KNO SUB3, DISSOLVED IN H SUB2 O AND FILTERED; 5 ML FILTRATE WAS PLACED ON A COLUMN WITH 3 G CATION EXCHANGER IN NH SUB4 PRIME POSITIVE FORM AND LEFT FOR 12 HR. THEN THE COLUMN WAS WASHED WITH 0.1N NH SUB4 CL AND ELUTED WITH A 0.5PERCENT SOLN. OF (L,HYDROXYPHENYLIMINO)DIACETIC ACID (I) (1 ML-MIN). EVERY FRACTION OF 5 ML WAS IGNITED IN A PT DISH. TIRN. WITH TRILON B GAVE MG WITH ERIOCHROME BLACK T INDICATOR AND CA WITH FLUOREXONE INDICATOR. QUANT. SEPN. OF CA-MG, ELUTED IN THAT ORDER, WAS OBTAINED WITH I, AND THE ORDER MG-CA WITH IMINODIACETIC (II), (BETA HYDROXYETHYLIMINO)DIACETIC (III), AND NITRILOTRIACETIC ACID (IV). SR-CA WAS SEPD. ON KU-2 (A STRONG ACID POLYSTYRENE TYPE EXCHANGER) IN NH SUB4 PRIME POSITIVE FORM, ELUTED IN THAT ORDER BY 0.5PERCENT SOLN. OF I, AND IN THE REVERSE ORDER BY 1.5PERCENT SOLN OF II, OR 0.5PERCENT SOLNS. OF III OR IV. ARTIFICIAL ADMIXTS. OF NA, MG, FE, AND AL DID NOT INTERFERE. FACILITY: TASHKENT. GOSUNIV. IN. LENINA, TASHKENT, USSR.

UNCLASSIFIED

USSR

Pharmacology and Toxicology

UDC 577.158.8

ROMASHINA, L. V., VOZNAYA, N. M., GROSSE, R., RAKHIMOV, M. M., and LUZIKOV, V. N., Laboratory of Bioorganic Chemistry, Moscow State University imeni M. V. Lomonosov, Moscow

"Mechanism of the Inactivation of the Respiratory Chain by Cobra Venom Phospholipase"

Moscow, Biokhimiya, Vol 37, No 6, Nov/Dec 72, pp 1204-1209

Abstract: The effects of phospholipase A isolated from the venom of the Central Asian cobra on the respiratory chain of the succinate dehydrogenase system of submitochondrial particles and the NADH oxidase complex (I + III + IV) reconstructed from the cytochrome of c-oxidoreductase (I + III) and the cytochrome of c-oxidase (IV) were studied. It was found that electron transfer was disturbed mainly at the level of cytochrome c in a link of the respiratory chain common to the NADH and succinate oxidase systems.

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USSR

UDC 577.15.04 + 577.153

BAKHIKOV, H. M., AIZIKOV, E. I., and YULDASHEV, P. KH., Order of the Labor Red Banner Institute of the Chemistry of Natural Products

"The Effect of Growth Regulators on the Activity of Lipase. II"

Tashkent Khimiya Prirodnykh Soyedinenii, No 1, 1972, pp 100-103

Abstract: Fatty acids can either inhibit or stimulate the cotton seed lipases, depending on their concentration. At a given concentration some plants may be stimulated, while other would be inhibited. This may be due to different lipases being specific to these plants, or to the differences in concentration specificity governing the inhibitory or stimulating zones. Comparying a series of acid homologs, it was determined that the stimulating activity decreases in the order: phenylbutyric, valeric, δ-phenylvaleric, β-(3-methyl-4-hydroxy)-phenylbutyric acids. The inhibitory activity decreases in the following order: butyric, valeric, γ-phenylbutyric, β-(3-methyl-4-hydroxy)phenylbutyric, and δ-phenylvaleric acids.

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USSR

UDC 535.231.4

ARIFOV, U. A., RAKHIMOV, R. R., VERGUN, V. R., and KOVRYAZHENKOV, I. M., Electronics Institute, Academy of Sciences Uzbek SSR

"Variations in the Emissivity of a Surface During Bombardment With Atomic Oxygen Ions"

Tashkent, Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-Matematicheskikh Nauk, No 3, 1973, pp 73-76

Abstract: The article describes results of a study of the effect of atomic oxygen ion fluxes on the emissivity of the surface of an enamel coating with an emittance of $\varepsilon = 0.9$ in the 100-ev energy region. The instrument used for the study differed from one previously used by the authors for molecular fluxes in the design of the ion source and in a somewhat different measurement sequence. It was found that bombardment with atomic oxygen ion fluxes leads to an increase in the emissivity of the surface. A comparison of the results obtained for the case of bombardment with molecular and atomic fluxes showed that the change in ε of the coating is identical in character, differing only in the quantitative values for the same flux density. Ionic bombardment

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ARIFOV, U. A., et al., Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-Matematicheskikh Nauk, No 3, 1973, pp 73-76

with atomic fluxes is less effective: the emissivity of the coating reaches the maximum after a longer time interval, and the value of the maximum for ε is appreciably less than in the case with molecular fluxes.

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ARIFOV, U. A., RAKHIMOV, R. R. and GAYPOV, S.

UDC 537.534.8

"Electron Emission From Single Crystals of Alkali-Halide Compounds Under Bombardment by Ions and Atoms of Inert Gases"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, No. 3, Mar 71, pp 562-566

Abstract: The potential and kinetic electron emission from KBr, NaCl, and LiF crystals under bombardment by singly charged ions and neutral atoms of He, Ne, Ar, and Kr in the range 200-6000 ev (from 60 ev in the case of He) is discussed. The coefficients γ^+ and γ^0 were measured as a function of the energy E_0 for bombardment of the three single crystals by the ions and atoms of the four elements. The coefficients increased monotonically with an increase in the energy of the bombarding particles. In all cases, the coefficient γ^+ is greater than the coefficient γ^0 at low energies. In the low-energy region the difference in the values of γ^+ and γ^0 for a given energy is apparently caused by the potential electron emission. It was observed that there was a decrease in the difference in the values γ^+ and γ^0 with the growth of the kinetic energy of the primary particles.

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... another and even the coefficient γ^0 becomes greater than γ^+. ... a change in the curves with an increase in γ^0 is associated with a change in the coefficient of potential emission with an increase in E_0 and a more effective kinetic stripping of electrons from dielectrics by neutral atoms. Curves $\gamma^0(E_0)$ for the three different crystals are given. In the case of Ar and Kr atoms, the curves are such that for a given kinetic energy γ^0 increases with a decrease in the width of the forbidden zone of the crystals. In the case of He and Ne atoms, a different behavior is observed. It is concluded that, as distinct from metals for which there was shown the absence of a considerable effect of ion velocity on the potential emission of electrons, in the case of alkali-halide compounds there is a considerable effect of ion velocity on the coefficient of potential electron emission. The presence of electron emission at energies below the threshold energies E_0, even in cases in which $eV_i < 2W$, indicates that electron emission occurs not only from the valence zone but also from local levels located in the forbidden zone of the dielectric. The preservation of individual properties of an atomic particle on the surface of a dielectric due to difficult electron exchange is given as a possible explanation of increased electron emission in the case of bombardment by atoms; i.e., the presence of the effect of the charge of the bombarding particle on the coefficient of kinetic emission of the electrons.

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USSR

UDC 537.533.2 + 537.534.8

ARIFOV, U. A., FLYANTS, N. N., and RAKHIMOV, R. R., Institute of Electronics, Academy of Sciences Uzbek SSR

"Secondary Emission From RbBr, Se, and CdTe Films Under Bombardment by Sodium Ions and Atoms"

Tashkent, Izvestiya Akademii Nauk Uzbekskoy SSR, Seriya Fiziko-Matematicheskikh Nauk, No 4, 1970, pp 45-47

Abstract: The article describes results of a study of electron emission from RbBr, Se, and CdTe films under bombardment by sodium ions and atoms in the 30-2500 ev energy range. It was found that the secondary electron emission coefficients increase monotonically with the energy of the bombarding particles for all the films, with electron emission greater in the case of atomic bombardment than ion bombardment for any energy value. Data are given on positive and negative ion emission for RbBr and CdTe films. The results show that electron emission from dielectric films under bombardment by alkali metal atoms proceeds more effectively than under bombardment by like ions.

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ARIFOV, U. A., FLYANTS, N. N., and RAKHIMOV, R. R. UDC 537.533.8

"Secondary Emission of Some Dielectric and Semiconductor Films Under the Action of Bombardment by Na and K Ions and Atoms"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 2, Feb 71, pp 248-251

Abstract: The authors studied secondary electron emission, positive and negative, from CsI, RbBr, Se, and CdTe films under the action of sodium ion and atom bombardment and from RbBr and KCl films under potassium ion and atom bombardment in the 30-2500 ev range. Measurements were performed by the oscillographic double modulation method during continuous film application. It was found that electron emission from dielectric films under bombardment by alkali metal atoms proceeds more effectively than under bombardment by like ions. This conclusion fails to coincide with the conclusion reached by the authors in previous articles, which showed that the coefficient of kinetic electron emission is the same for bombardment of metals by like atoms and ions.

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1/2 012 UNCLASSIFIED

TITLE--COMPOSITION FOR REMOVING LAC DYE COATINGS -U-

PROCESSING DATE--04DEC70

AUTHOR-(05)-VOLODIN, N.L., GARIFZYANOV, G.G., RAKHIMOV, R.R., POTAPOV, A.M., SHAROV, V.G.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 265,341

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--09MAR70

SUBJECT AREAS--MATERIALS, CHEMISTRY

TOPIC TAGS--LACQUER, DYE, ORGANIC SOLVENT, CHEMICAL PATENT, POLYETHYLENE, POLYAMINE

CONTROL MARKING--NO RESTRICTIONS

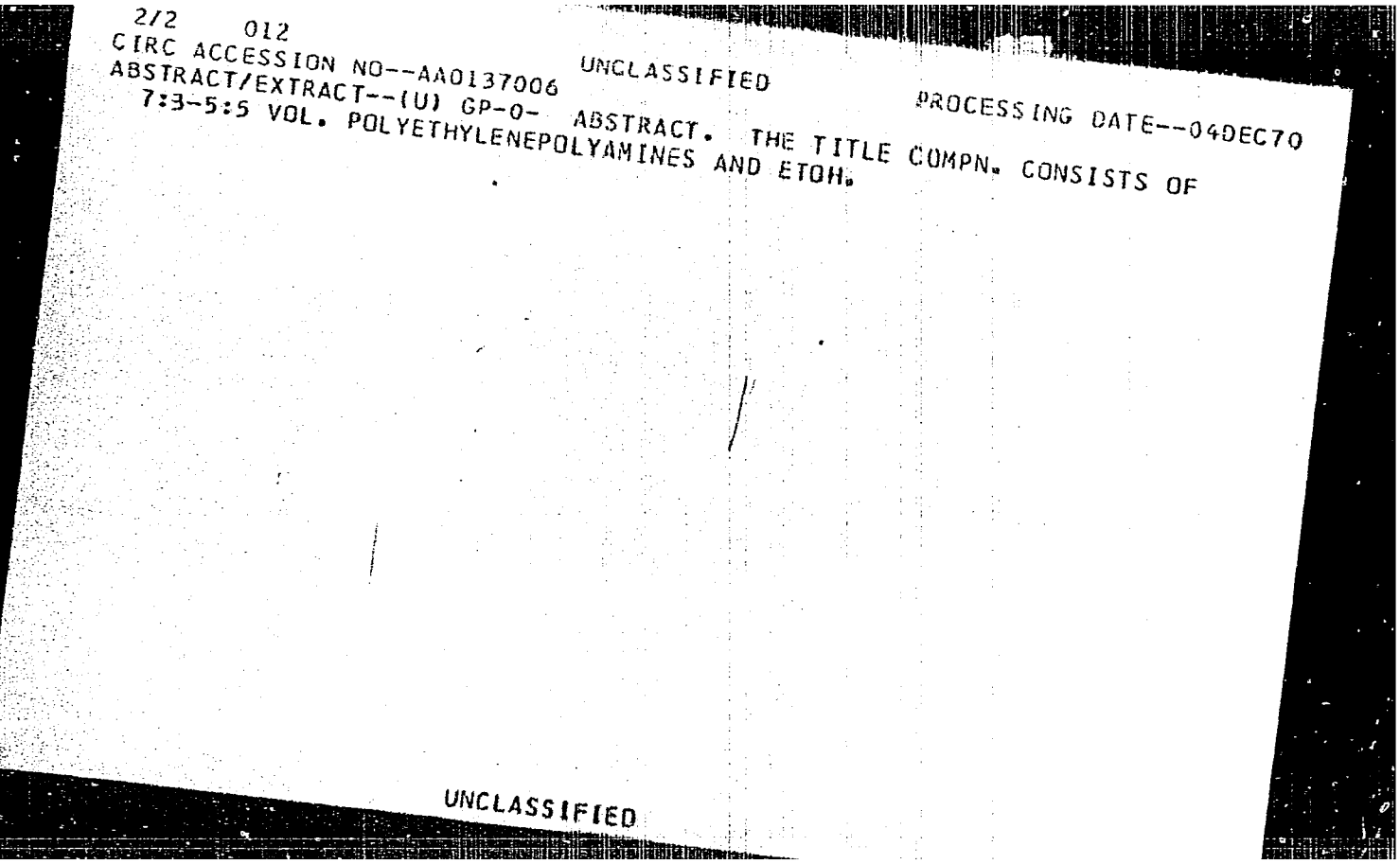
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1766

STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0137006

UNCLASSIFIED



2/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AA0137006
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPN. CONSISTS OF
7:3-5:5 VOL. POLYETHYLENEPOLYAMINES AND ETOH.

UNCLASSIFIED

USSR

UDC 617-001.36-036.1:551.585.7

TADZHIYEV, K. T., and RAKHIMOV, S. I., Tadzhik Medical Institute, Dushanbe

"Peculiarities of the Course of Traumatic Shock Under Alpine Conditions"

Moscow, Khirurgiya, No 4, 1972, pp 3-7

Abstract: A study of 77 patients in different hospitals located in the Pamir mountains (approximate elevation 3,600 m) and of an equal number of patients in Dushanbe hospitals (800 m elevation) showed that 74 patients in the Pamirs survived traumatic shock (loss of limbs, different fractures, hemorrhages), as opposed to 65 in Dushanbe City, in spite of the late hospitalization, prolonged transportation, and inadequate medical treatment. This is attributed to the adaptation of the human organism to hypoxia at high altitudes, and to the development of nonspecific resistance to traumatic shock and loss of blood. This was verified in experiments with dogs which showed that 84% of dogs acclimatized to high altitudes survived severe shock, while 90% of nonacclimatized dogs perished under identical conditions in the Pamir mountains. Among control dogs in Dushanbe, the survival percentage reached only 39%. Traumatic shock under alpine conditions was accompanied in acclimatized dogs by a sudden decrease of arterial blood pressure (to 45.0 ± 0.9 mm) and an increase in venous blood pressure (from 111.0 to 190 ± 2.8 mm). The latter condition is considered

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TADZHIYEV, K. T., and RAKHIMOV, S. I., Khirurgiya, No 4, 1972, pp 3-7

to be dominant under high altitude conditions. Data regarding the concentration of CO_2 and of oxygen in the arterial and venous blood before and after traumatic shock are given, along with the respiration rates of dogs.

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USSR

UDC 611.45:613.1

RAKHIMOV, Ya. A., SAPIN, M. R., and ETINGEN, L. Ye., Tadzhik State Medical Institute imeni Abauli Ibn-Sino

"Morphology of the Adrenal Glands of Dogs Under High-Altitude Conditions"

Dushanbe, Izvestiya Akademii Nauk Tadzhikskoy SSR, No 2, 1970, pp 17-23

Abstract: A study was conducted in which 150 dogs were kept at the Anzob Pass (elevation, 3,375 m) for 1 to 60 days. Controls were kept in Dushanbe (elevation, 800 m). The climatic and geographic conditions at Anzob had a definite effect on the adrenal cortex of experimental dogs. The principal change noted was in blood circulation, as manifested by plethora, hemorrhages, disturbances in the permeability of the blood vessel walls, and edema. Granular dystrophy occurred in the zona glomerulosa, with occasional necrosis of individual cells. In the first few days at high altitude, the DNA in adrenal cells and the RNA in individual glomerular and fascicular zones were lowered. The DNA level returned to normal in 3-7 days. Fats were initially lowered to some extent and after 15-30 days became markedly low. During this period the more important shifts associated with adaptation of the organism to high altitude took place, accompanied by a sharp increase in the functional activity of the adrenal cortex.

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USSR

UDC: 611.43:611.1.067-019:612.014.45

RAKHIMOV, Ya. A., and BELKIN, V. Sh., Chair of Normal Anatomy, Medical Faculty, Tadzhik State Medical Institute imeni Abu Ali Ibn-Siny

"Morphology of Vessels of Some Endocrine Glands in Dogs Exposed to Whole-Body Vertical Vibration"

Leningrad, Arkhiv Anatomii, Gistologii i Embriologii, Vol 59, No 11, Nov 70, pp 43-49

Abstract: The intraorgan vascular bed of the thyroid, adrenals, ovaries, and testes was studied in dogs which had been exposed to whole-body vertical vibration (4.6 Hz, amplitude 2.2 mm) for a period of 3 minutes to 10 days. The endocrine glands were studied 1, 3, 7, 15, 30, and 60 days after exposure. A high functional activity of the thyroid gland was found in dogs exposed to vibration. The adrenal glands showed a drop in lipid content in cortical layers. Dystrophic changes in the glomerular zone and enlargement of the sinusoids in the reticular zone and medullary layer of the organ were also observed. Circulatory disorders such as congestion and hemorrhages in the reticular zones were noted. The lymphatic bed volume was enlarged, and there were some indications of deformation in

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USSR

RAKHIMOV, Ya. A., and BELKIN, V. Sh., Arkhiv Anatomii, Gistologii i Embriologii, Vol 59, No 11, Nov 70, pp 43-49

in the lymphatic vascular net and its capillaries. These changes gradually disappeared 30-60 days after exposure to vibration. In the testes, distinct hemodynamic disturbances were noted within the first 3 days; spermatogenesis was depressed, and there were dystrophic changes in the seminiferous tubules; the lipid content in the spermatogenic epithelium was reduced. Intraorgan circulation was generally affected, with enlarged blood vessels and capillaries. The structure of blood vessels and lymphatic capillaries was impaired throughout, with deformed loops and extravasation. The ovaries appeared to be relatively resistant. The changes in intraorgan blood and lymph circulation are believed to be of importance in the general response of the endocrine glands to the effects of vibration.

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USSR

UDC 547.341:547.52/59,023

KHARRASOVA, F. M., ZYKOVA, T. V., SALAKHUTDINOV, R. A., and RAKHIMOVA, G. I., Kazan' Chemical Technological Institute imeni S. M. Kirov

"Data of ^{31}P NMR Spectroscopy of the Acid Chlorides and Esters of Some Arylphosphonic Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 12, Dec 73, pp 2642-2644

Abstract: The NMR ^{31}P spectra of the acid chlorides and esters of phenylphosphonic acid and its p-substituted derivatives were studied showing that the effect of conjugation between the aromatic nucleus and tetracoordinated phosphorus atom exceeds considerably the inductive effects. This leads to increased shielding of the phosphorus atom nucleus as compared to alkylphosphonic esters of analogous structures.

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UDC 547.341

USSR

KHARRASOVA, F. M., RAKHIMOVA, G. I., ZYKOVA, T. V., and SALAKHUTDINOV, R. A., Kazan' Chemical Technological Institute imeni S. M. Kirov

"The Action of Carbon Tetrachloride and Chloral on Some β-Chloroethyl Esters of Arylphosphonous Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 9, Sep 73, pp 1930-1934

Abstract: The reaction of some arylphosphonous acid bis-β-chloroethyl esters with carbon tetrachloride and chloral was investigated, showing that with chloral the β-chloroethyl-β', β'-dichlorovinyl esters of arylphosphonous acids are obtained. The formation of β-chloroethyl esters of aryltrichloromethylphosphinous acids in the reaction of bis-β-chloroethylphosphonites with carbon tetrachloride is accompanied by the oxidation of these esters to arylphosphonates. The NMR ^{31}P spectra of the products obtained have been studied.

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USSR

UDC: 547.241

RAKHIMOVA, G. I., KHARRASOVA, F. M., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Action of Carbon Tetrachloride and Chloral on β-Chloroethyl Esters of Certain Alkylphosphonous Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 6, Jun 72, pp 1244-1247

Abstract: β-Chloroethyl esters of methyl-, ethyl-, propyl- and butylphosphonous acids were reacted with CCl_4 and chloral. When reacted with chloral, these compounds were readily converted to β-chloroethyl-β',β'-dichlorovinyl esters of the corresponding alkylphosphonic acids:

$$RP(OCH_2CH_2Cl)_2 + CCl_3CHO \longrightarrow RP(O)\begin{matrix}OCH_2CH_2Cl \\ OCH{=}CCl_2\end{matrix} + ClCH_2CH_2Cl.$$

On the other hand, reaction with CCl_4 yielded chiefly β-chloroethyl esters of the corresponding alkyltrichloromethylphosphinous acids:

$$RP(OCH_2CH_2Cl)_2 + CCl_4 \longrightarrow \begin{matrix}R \\ CCl_3\end{matrix}\!\!>P(O)OCH_2CH_2Cl + ClCH_2CH_2Cl.$$

The identification of these acid esters was confirmed by thin layer chromatography.

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USSR

KUCHKAROV, Ya. Kh., RAKHIMOVA, H., ALIMOVA, M.

"Application of Topological Semifields to the Rule of the Repeated Logarithm for Martingales"

[Tr.] Tashkent. Politekhn. In-ta [(Works) of Tashkent Polytechnical Institute], 1972, No 76, pp 154-162 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V51, by the authors).

Translation: This article is dedicated to the rule of the repeated logarithm for sequences of random processes forming a martingale and for which there is no second moment. The results produced are a generalization and refinement of certain known theorems on the repeated logarithm.

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USSR

UDC 576.851.48.095.38:576.851.315

POKROVSKAYA, M. P., EPSHTEYN-LITVAK, R. V., VIL'SHANSKAYA, F. L., RAKHINOVA, N.G. POSPELOVA, V. V., KUDRYAVTSEV, N. G., SIL'VERSTOVA, T. N., KALININA, A. M., and SYADUK, V. F., Moscow Institute of Epidemiology and Moscow Municipal Sanitary Epidemiological Station

"In vitro Antagonistic Activity of E. coli (Strain M-17) and B. bifidum (Strain 1) Against El Tor Cholera Vibrios"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972, pp 54-59

Abstract: The antagonistic activity of E. coli (strain M-17) and B. bifidum (strain 1) against 11 El Tor cholera vibrio strains (Inaba serotype 6 and Ogawa serotype 5) was studied in mixed cultures in vitro. During the first 6 hours of combined cultivation of E. coli and a cholera vibrio strain both microbial species grew, but the number of live vibrios began to decrease after 24 hours and after 48 hours almost all were dead. B bifidum had a similar inhibiting effect on vibrio growth. In the presence of both antagonistic strains, all the vibrios died within 48 hours without reproducing in the initial period of cultivation. It is suggested that the antagonistic activity of the two strains under study might be duplicated in an intestinal biocenosis and that a preparation made from these microorganisms (a combination of colibacterin and

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POKROVSKAYA, M. P., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 10, 1972, pp 54-59

bifidumbacterin) should, in principle, be an effective means of treating vibrio carriers and correcting the change in intestinal microflora observed in cholera.

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USSR

POSPELOVA, V. V., RAKHMANOVA, N. G., KOROLEVA, A. I., D'YAKOVA, Ye. I., KURNOSOVA, N. A., and SMIRNOV, G. V., Moscow Scientific Research Institute of Epidemiology and Microbiology

"New Forms of Kolibakterin -- a Preparation for Nonspecific Prophylaxis and Therapy of Intestinal Infections"

Tashkent, Meditsinskiy Zhurnal Uzbekistana, No 6, 1970, pp 48-49

Abstract: Kolibakterin is a preparation of live bacteria of antagonistic E. coli M-17 strain. It has been used fairly successfully as a drug for nonspecific prophylaxis and therapy of acute dysentery and chronic colitis, and for the restoration of the normal intestinal microflora in various bacterial diseases. However, the form in which it was available -- a loose mass in vacuum ampules -- made tedious weighing and dissolving of individual doses necessary. Furthermore, the bacteria were partly destroyed in the stomach by hydrochloric acid. Early attempts to press the mass into tablets were unsuccessful, since the biological activity of the preparation rapidly decreased. A new method of obtaining kolibakterin in dry form and pressing it into tablets or packing it into gelatin capsules has been developed. Preliminary tests have shown that both the tablets and the capsules are as effective as the original preparation. The next step is to mechanize the procedure and to use acid-resistant capsules.

1/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--MECHANISM OF A REVERSIBLE FAVORSKII REACTION. II. ALKALINE SPLITTING OF O-DEUTERATED METHYLETHYL, PHENYLETHYNYL, CARBINOL AND

AUTHOR-(04)-SHCHELKUNOV, A.V., MULDAKHMETOV, Z.M., RAKHIMZHANOVA, N.A., FAVORSKAYA, T.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(5), 930-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL REACTION MECHANISM, ALKYNE, IR SPECTRUM, SPECTROSCOPIC ANALYSIS, KETONE, ALCOHOL, ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1324 STEP NO--UR/0366/70/006/005/0930/0935

CIRC ACCESSION NO--AP0136598

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0134998

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REACTION OF MECCCT WITH DC TRIPLE BOND CPH IN THE PRESENCE OF KOD GAVE HC TRIPLE BOND CPH, ETCOCH SUB2 D (I), AND MECHCCOCH SUB2 D (II). THE DISTRIBUTION OF D IN THE PRODUCTS, OBTAINED BY DETD. D. OF WATER FROM THE ANAL. COMBUSTION; AND IR SPECTROSCOPY DEFINE THE PATHWAY.

FACILITY: KHIM.-MET. INST., ALMA ATA, USSR.

UNCLASSIFIED

USSR

UDC 541.183

GRYAZEV, N. N., RAKHLEBSKAYA, M. N. and SHEPELEVA, L. P., Saratov Polytechnical Institute, Saratov, Ministry of Higher and Secondary Specialized Education RSFSR

"Planning of Experiments on Adsorption from Three-Component Solutions

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 491-494

Abstract: The method of planning experiments was used for the first time for the study and analytical treatment of adsorption from a three-component solution in the instance of adsorption on Inza diatomite of component of the system propionic acid - stearic acid - decalin. The process studied can serve as a model of adsorption processes connected with the purification of lubricants. The concentrations of the two acids were used as independent variables and the magnitudes of adsorption of the acids as optimization parameters. It was established that propionic acid interfered with the adsorption of stearic acid. The conditions under which the experiments were conducted, the planning matrix, and the results obtained are compiled in the form of a table. The equations that were derived made it possible to construct three-dimensional adsorption isotherms on the basis of a much smaller amount of experimental data than would be necessary if the method of statistical planning were not applied.

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USSR UDC 620.17:669.018.5

POVOLOTSKIY, YE. G., and RAKHLEVSKAYA, M. N., Saratov Polytechnic Institute

"Planning of an Experiment for the Optimization of the Properties of the Tikonal Alloy"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 5, May 73, p 76

Abstract: A method of experiment planning is utilized for the optimization of heat treatment and for deriving the highest magnetic properties of tikonal alloy. Alloys of the following composition were studied: 38% Co; 16% Ni; 6% Al; 8% Ti; 3.7% Cu; Fe -- the remaining percentage. Silit furnaces were used for preheating for hardening. The isothermal thermomagnetic treatment was carried out in molten tin bath, built in a gap of the electromagnet, whose temperature was regulated with an accuracy $\pm 3^{\circ}$C. A maximum level of three technically important magnetic characterisites of the alloy was obtained.

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1/3 012 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--PLANNING AN EXPERIMENT DURING A STUDY OF ADSORPTION FROM THREE COMPONENT SOLUTIONS -U-

AUTHOR-(03)-RAKHLEVSKAYA, M.N., GRYAZEV, N.N., SHEPELEVA, L.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 491-4

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ADSORPTION, PROPIONIC ACID, STEARIC ACID, CYCLOALKANE HYDROCARBON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1179 STEP NO--UR/0076/70/044/002/0491/0494

CIRC ACCESSION NO--AP0123601

UNCLASSIFIED

2/3 012 UNCLASSIFIED PROCESSING DATE---20NOV70

CIRC ACCESSION NO--AP0128601

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF PLANNING AN EXPT. WAS USED FOR THE STUDY AND ANAL. DESCRIPTION OF THE ADSORPTION OF A 3 COMPONENT SOLN. (PROPIONIC ACID PLUS STEARIC ACID PLUS DECALIN) ON DIATOMITE (S SUBBET EQUALS 40 M PRIME2-G, S PRIME EQUALS 5 M PRIME2-G, D SUBEFF APPROXIMATELY EQUAL TO 225 ANGSTROM AT 40DEGREES. THE CONCNS. OF PROPIONIC AND STEARIC ACIDS, X SUB1 AND X SUB2, RESP., WERE CHOSEN AS THE INDEPENDENT PARAMETERS WHILE VALUES OF ADSORPTION OF PRIONIC AICD IN THE PRESENCE OF STEARIC ACID Y SUB1 AND ADSORPTION OR STEARIC ACID IN THE PRESENCE OF PROPIONIC ACID Y SUB2 SERVED AS OPTIMIZATION PARAMETERS. THE CONDITIONS OF REALIZATION OF EXPTS., THE MATRIX OF THE PLANNING, AND RESULTS ARE TABULATED. FROM THE DATA OBTAINED THE SPACE ADSORPTION ISOTHERMS WERE CONSTRUCTED. THE ADSORPTION DATA CONFIRM THAT THE PRESENCE OF STEARIC ACID (AT X SUB2 SMALLER THAN 45 MILLIMOLES-L.) SHOWS PRACTICALLY NO EFFECT ON THE ADSORPTION OF PROPIONIC ACID FOR THE CASE OF THE DENSE FILLING OF A MONOLAYER. HOWEVER, AT X SUB1 SMALLER THAN 100-159 MILLIMOLES-L. THE ADSORPTION OF PROPIONIC AICD IS LOWER THAN THAT FROM TH EBINARY MIXT. THE EQUATION Y SUB1 EQUALS 0.28 PLUS 0.026 S SUB1 MINUS 0.004X SUB2 MINUS 0.017X SUB1 PRIME2 MINUS 0.009X SUB2 PRIME2 CAN BE USED FOR DESCRIPTION OF ADSORPTION OF PROPIONIC ACID IN THE CONCN. INTERVAL 5-10 TO 300 MILLIMOLES-L. FOR VALUES OF ADSORPTION OF STEARIC ACID IN THE PRESSENCE OF PROPIONIC ACID THE FOLLOWING EQUATION WAS OBTAINED: Y SUB2 EQUALS 0.053 MINUS 0.007X SUB1 PLUS 0.019X SUB2 PLUS 0.0014X SUB1 PRIME2 MINUS 0.0046X SUB2 PRIME2 MINUS 0.001X SUB1 X SUB2.

UNCLASSIFIED

3/3 012 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128601

ABSTRACT/EXTRACT--BY INTRODUCING PROPIONIC ACID IN THE MIXT. THE VALUE OF ABSORPTION OF STEARIC ACID IS CHANGED CONSIDERABLY. THE SUBSTITUTION OF MOLS. OF STEARIC ACID WITH MOLS. OF PROPIONIC AICD BEGINS IN THE ADSORPTION LAYER. FACILITY: SARATOV. POLITEKH. INST., SARATOV, USSR.

UNCLASSIFIED

USSR

UDC 621.396.69:621.318.4

TORLIN, G. M., BAGULIN, R. A., RAKHLIN, I. N.

"Problem of Selecting the Parameters of an Inductance with Toroidal Ferromagnetic Cores"

Materialy II Nauchno-tekhn. konferentsii Kramatorsk. n.-i. i proyektnotekhnol. in-ta mashinostr. -- V sb., 1969 (Materials of the Second Scientific and Technical Conference of Kramatorsk Scientific Research and Design Technology Institute of Machine Building -- collection of works, 1969), Kramatorsk, 1970, pp 132-133 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4V509)

Translation: It is recommended that experimentally obtained graphs of the frequency corresponding to the maximum Q-factor as a function of the number of turns be used to calculate coils. The technique and equipment for obtaining the graph data are presented. There is 1 illustration and a 3-entry bibliography.

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RAKHLIN, I.V.

Econ

COMPREHENSIVE PLANNING OF CHEMICALIZATION OF PRODUCTION

[Article by I. V. Rakhlin, Candidate of economic sciences, Institute of Economics, AS USSR, Novosibirsk, Planovoye i Organizatsiya Proizvodstva, Russian, No. X, 1971, pp 51-65]

The Directives of the 24th Party Congress on the five-Year plan for development of the economy of the USSR during 1971-1975 emphasize that extensive intensification of social production and increasing its efficiency comprise the main lines of economic development of our country during the next few years and in the long-term perspective.

One of the most important components of the effectiveness of social production is its material content. Significant changes are taking place in the structure of expenditures for industrial production in the USSR. During the years 1950-1968 the portion of expenditures for all types of materials, fuel and energy increased from 39.2 percent to 75.4 percent, with a reduction in the ratio of labor wages from 34.1 percent to 16.5 percent. In addition, the material demand of national economy ture in the 1961-1965 period dropped by 4 to 5 billion rubles. and in 1966-1970 dropped 30 billion rubles. In other words, the role of the objects of labor in increasing production effectiveness has increased sharply.

During a thousand years of development of the forces of production of society the objects of labor have for all practical purposes remained untouched -- these are the most conservative elements of the work process. A different situation obtained under the conditions of the modern scientific-technical revolution: new materials with properties determined in advance have been created, some of which properties are not found among the so-called traditional (natural) materials; great achievements have been attained in the modification of materials that have been used in the past.

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Now, and modified objects of labor began to have an active effect on the development of technology, on acceleration of scientific-technical progress, and on the growth of productivity of social labor. The new materials opened broad new possibilities for the development of techniques based on new principles. Improving technical-economic parameters of production machines and equipment, expansion of raw material and semi-finished material resources and increasing the degree of their useful exploitation, returning production wastes to the economic cycle, reducing capital and current expenditures for the preparation and utilization of various types of production, etc.

The 24th Party Congress set the task in resolving problems of the technical improvement of production as providing for the development and mastery of new, and very economical materials, including polymers and very pure substances, plus the development and industrial introduction of new processes of chemical technology. Further development of the chemical science will be ensured, especially in the field of improving the scientific bases of developing new polymeric and inorganic substances, highly efficient chemical-technological and electrochemical processes and advanced methods of obtaining very pure substances. Comprehensive chemicalization of the national economy is one of the main trends of the scientific-technical process, an important element in establishing the material-technical basis of communism.

Chemicalization of production predicates the growth and perfection of the chemical industry, continuous development and introduction into all branches of the public economy of high-efficiency chemical processes and materials, extensive development of chemical and mixed fields of science and technology as a determining factor in the creation of new, and modification of existing production processes and materials. Chemicalization is to be considered a unique means of increasing raw material and supply resources within a scope practically unattained by other means.

High rates of growth of the chemical industry of the USSR are necessary to satisfy the increasing demands on production in all branches of the public economy. Chemicalization of agriculture, the light- and food industries, housing construction, and production of household goods enables direct acceleration of the growth of public welfare. The past ten years have seen an especially rapid growth in the demand for polymeric substances (plastics and chemical fibers), synthetic detergents, organic pesticides, mineral fertilizers, petroleum chemistry products, etc.

USSR

UDC: 621.317.791

BERKMAN, R. Ya., BONDARUK, B. L., and RAKHLIN, L. I.

"Magnetotransistor D-C Voltage Amplifiers"

Moscow, Izmeritel'naya tekhnika, No 4, 1972, pp 56-57

Abstract: The characteristics and applications of the magnetic modulator, especially in d-c amplifiers, are discussed. To begin with, the authors complain that the potentialities of the device are greater than its current application warrants, and that the operation specifications and parameters of the modulator recommended in the literature on it are not always optimal. They discuss research conducted on the modulator by the Physico-Mechanical Institute of the USSR Academy of Sciences, in which relationships between its parameters and those of measuring circuits guaranteeing operation stability were found. A variation in structure of the device has been developed in which the effect of the distributed capacitance in the control winding has been eliminated, with the result that the coil can be manufactured with any number of turns and that the current sensitivity of the device is sharply increased. A detailed list of the technical characteristics of a microvolt-nanoammeter using the modulator is given plus a suggested block diagram of this d-c meter.

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RAKHLIN, N. T.

Biochemistry/ Oncology

So: JPRS 54304 22 oct 71

UDC: 616-006-092.9-008.893.1:577.153.3

ENZYMATIC HYDROLYSIS OF ADENOSINE TRIPHOSPHATE ON THE SURFACE OF CANCER CELLS

[Article by N.T. Rakhlin (Moscow), Voprosy Onkologii, Vol 17, No 6, 1971, pp 47-50]

Plasma membranes control the cardinal properties of cells, yet the functional distinctions that determine their diverse activity remain unclear. The most general functional characteristic of membranes could be related to their ability to extract energy. One of the indices of energetic efficiency of this structure is, as we know, the presence of adenosine triphosphatase (ATPase).

In view of the fact that in recent times some researchers (Abercrombie and Ambrose; Yu.N. Vasil'yev and A.G. Malenkov) began to attribute decisive significance to changes in the cell surface, with reference to malignification and manifestation of tumorous properties, it appears to be of particular interest to make a comparative evaluation of the capacity to split ATP and release the energy contained in this compound in the plasma membrane of normal and cancer cells.

In view of the foregoing, we conducted an electron histochemical study of ATPase in the plasma membranes of C3HA mouse hepatic cells and of fast-growing transferable hepatoma 22a (V.I. Gol'tsheyn). Small pieces of liver and hepatoma tissue were fixed in 2.5% glutaric aldehyde for two hours, then eluted for 24 hours in several changes of 0.1 M phosphate buffer (pH: 7.2). Containing 7.5% saccharose. For demonstration of ATPase we used sections 30 microns in thickness which were incubated for 40 minutes, at 37°, in Wachstein and Meisel medium. After incubation and elution in phosphate buffer with saccharose, section fragments were fixed in osmium tetroxide for two hours and embedded in Epon-812. Additional staining was performed with uranyl acetate for the fragments and lead citrate for ultrasections. Sections were cut with an LKB ultramicrotome, they were examined and photographed with a JEM-7 electron microscope.

Mouse liver. In hepatic cells the highest activity is demonstrated the most consistently in areas where the membrane forms bile capillaries (Figure 1). Numerous microfibrils are directed toward the sinusoids (Disse's spaces) and

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TITLE--LATEX FOR FINISHING LEATHER -U-

AUTHOR-(04)-LARKINA, T.A., ZURABYAN, K.M., RAKHLIN, P.I., LEBEDEV, A.V.

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SUBJECT AREAS--MATERIALS

TOPIC TAGS--LATEX, SPECIALIZED COATING, BUTADIENE, ACRYLATE, COPOLYMER, ACRYLAMIDE, LEATHER, THERMAL STABILITY/(U)DMMA65 1GP LATEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0264 STEP NO--BU/0030/70/012/002/0017/0021

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